OCT 17 1968

FLIGHT

MAGAZINE

OCTOBER, 1960
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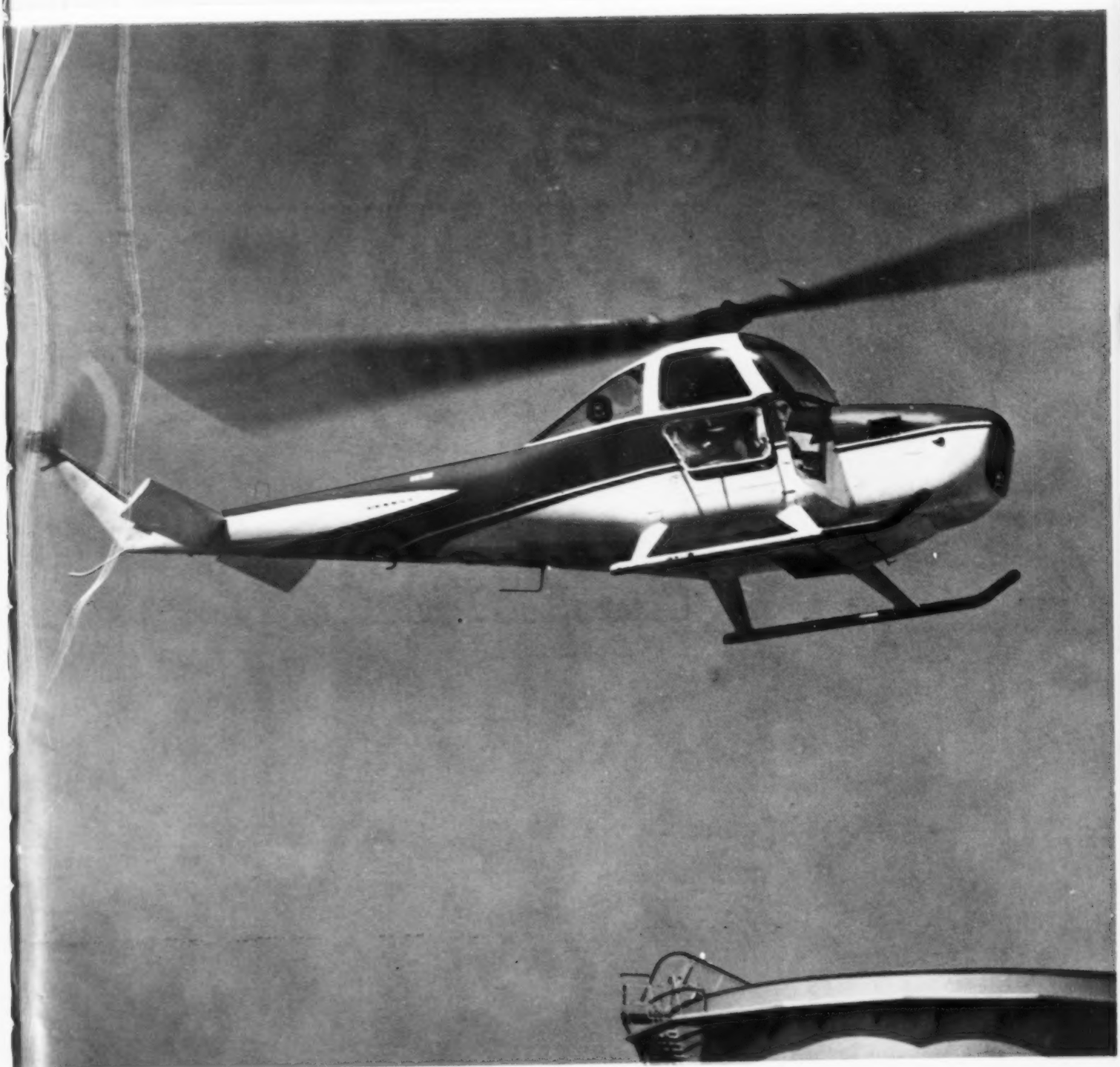


CESSNA SKYHOOK

(See page 24)

The Big Look. The Fairchild F-27 is the propjet with the wide, wide view and the look and feel of comfort. Large panoramic windows that offer every passenger an "up front" seat. Air conditioning that functions as efficiently on sun-baked runways as it does high in the air. Pressurization that never varies no matter the altitude. This is the Fairchild F-27, propjet with the Big Look.

FAIRCHILD F-27

Serving these progressive airlines:

FAIRCHILD ENGINE & AIRPLANE CORPORATION • HAGERSTOWN, MARYLAND

AREA / AVENSA / ALOHA / BONANZA / NORTHERN CONSOLIDATED / OZARK / PACIFIC / PIEDMONT / QUEBECAIR / TRANS mar de CORTES / WEST COAST / WIEN

OCT 17 1960

Now you can fly with the world's most advanced automatic pilot for light executive and private aircraft—the Sperry SP-3 Series—confident in the knowledge that it meets FAA Technical Standard Order regulations for *airliner* equipment. It has already been certificated for the Cessna 310; the Piper *Apache, Comanche* and *Aztec;* the Aero Commander, and the Model 18 Beechcraft. Other certifications are forthcoming.

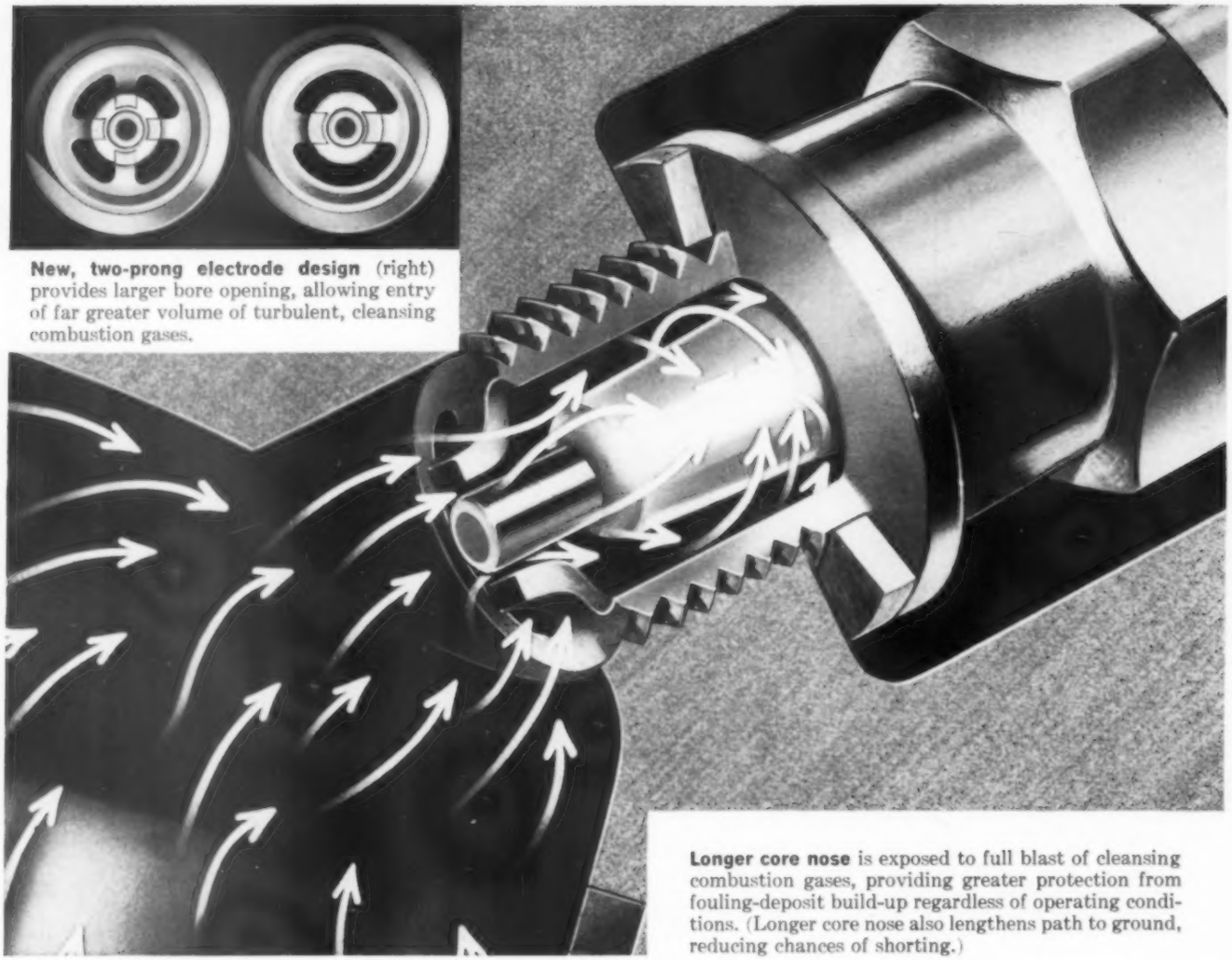
The SP-3 Series offers the full range of automatic control features—1 to 3-axis control by aileron, elevator, rudder; roll, pitch and yaw stabilization; automatic heading hold; fully electronic actuation; and the famous Sperry Gyro-Horizon and Directional Gyro—plus distinct advantages in weight, ruggedness, ease of maintenance, and traditional Sperry dependability. The systems are designated SP-1, SP-1A, SP-2, etc. depending on the degree of automation provided.

Revolutionary "building block" design lets you begin with just one axis, or two . . . and build a complete 3-axis system simply by adding 5-pound computer-actuator units. Transistorized, highly miniaturized circuitry results in single-axis system weight as low as 11 pounds, and a 3-axis system weight of only 27.5 pounds, *flight instruments included.* Ready availability of interchangeable modular units provides for ease of maintenance and replacement. The SP-3 Series is priced from $1818 to $4440. Write for name of nearest Sperry dealer.

SPERRY

SPERRY PHOENIX COMPANY, *DIVISION OF SPERRY RAND CORPORATION, PHOENIX, ARIZONA*

New, two-prong electrode design (right) provides larger bore opening, allowing entry of far greater volume of turbulent, cleansing combustion gases.



Longer core nose is exposed to full blast of cleansing combustion gases, providing greater protection from fouling-deposit build-up regardless of operating conditions. (Longer core nose also lengthens path to ground, reducing chances of shorting.)

Now approved for all commercial applications!

Here's why Champion's new REM40E and REM38E spark plugs resist fouling

The two-prong electrode, longer core nose and bigger bore let combustion gases blast the firing end clean!

Newer, higher-efficiency aircraft engines—requiring higher octane fuels with greater T.E.L. content—have inadvertently *increased* the old problem of spark plug fouling.

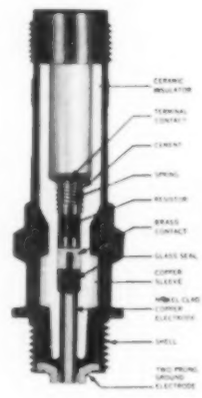
To cope with this problem, Champion has developed the new REM40E and REM38E plug types—*now* approved for *all* commercial applications: Pratt & Whitney and Wright engines as well as Continental, Lycoming, Franklin and Jacobs engines. In the firing end design, a two-prong electrode combined with a larger bore allows greater entry of turbulent combustion gases. These gases blast away core nose deposits. And the core nose itself is longer—which allows even greater exposure to cleansing combustion gases.

The advantages of the new *foul-resistant* plug design are these:

- Fouling protection, regardless of severity of operating conditions—from idle through takeoff to prolonged flight. Smooth, *full* power *all* the way.
- Relief from unscheduled plug removals.
- Virtual elimination of burn-out.

Extensive field evaluation tests have been run on the new plugs—all kinds of equipment, all kinds of operating conditions. *The new plugs are being hailed everywhere as truly foul-resistant and self-cleaning!* Operators say they've *doubled and even tripled* their plug life—and still the new plugs are firing away, *troublefree.*

For *peak* performance from *your* engine—smooth, continuous full-firing power and dependability at takeoff through prolonged flight—why not try Champion's new FOUL-RESISTANT spark plugs! (*Also available in All-Weather RHM40E and RHM38E types.*)



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SPARK PLUGS

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AIR Report

Significant Trends and News

CESSNA, PIPER AND BEECH ANNUAL INTERNATIONAL SALES MEETINGS will be held in October and November, featuring presentation of new models for 1961. Cessna's dates are Oct. 30-Nov. 1 in Wichita, Piper's Nov. 1-2 on Grand Bahama Island off Florida, and Beech's Nov. 16-17 in Wichita.

BILL LEAR'S NEW 500-MPH. TWIN-JET BUSINESS PLANE will be marketed in U. S. by new firm, Swiss American Aviation Corp. Under development in Switzerland, the 6-7-place high-performance, pressurized and air-conditioned Lear jet will be powered by turbofan engines and Lear hopes to market it for $250,000 about two years from now.

FLYING UNDERTAKERS meeting in Denver this month plan to form a new group, the Flying Morticians Association. Suggested theme song: "If a body meet a body, flying through the air. . . ."

NEW WORLD RECORD FOR ALTITUDE, in Class C-1.d for all aircraft in the 3,858-6,613-lb. gross-weight category, was set on Sept. 20, 1960, by Miss Jerrie Cobb in a new 680F Aero Commander. She reached an altitude of 37,010 ft., 1 hr. 49 mins. after taking off from Lockheed Air Terminal, Burbank, in her NAA-sanctioned hop. Miss Cobb is advertising and sales promotion manager of Aero Design & Engineering Co., Oklahoma City, which manufactures the Aero Commander. The 680F is powered by two 380-hp. supercharged and fuel-injected Lycoming engines.

THREE-FOR-ONE BEECH AIRCRAFT STOCK SPLIT was approved last month by stockholders.

FAA HAS RELEASED 18,000 SQUARE MILES OF RESTRICTED AIRSPACE for use by civilian aircraft since May, 1959. Latest areas released included 5,518 sq. mi. over the Olympic Peninsula in Washington, formerly used for interceptor training, and 813 sq. mi. over Hammond Bay, Michigan, formerly a gunnery-rocket range.

NATIONAL AVIATION TRADES ASSOCIATION has voiced its objections to regulatory standards for aircraft radio equipment used in VFR flying. NATA Executive Director Robert E. Monroe says choice to manufacture or to purchase higher-standard equipment should be a privilege, not a regulation. As for proposed higher standards for IFR equipment, he said termination dates for equipment now in use should be extended 5 to 7 years after rule making.

FIRST SUPER-V DELIVERIES have been made by Bay Aviation Services, Oakland, to distributors, following FAA certification. One went to Southland Aviation, Hope, Ark., and another to Bay Aviation Services' Oakland sales office. Six more Super-V's were on the production line last month. . . . **ROUND-THE-WORLD SOLO FLIGHT BY SUPER-V** will be attempted during the last two weeks of October by Chuck Banfe, an airline pilot and writer.

FAA CERTIFICATION OF UMBAUGH AUTOGYRO is expected in December, according to Raymond Umbaugh. The 2-place Umbaugh's tail configuration has been changed to incorporate three vertical fins in the production model.

NATIONAL ASSOCIATION OF STATE AVIATION OFFICIALS last month elected Clyde P. Barnett, California state director of aeronautics, as president, succeeding H. B. Wetherell of Connecticut. . . . **FLYING PHYSICIANS ASSOCIATION** has elected Dr. Frank H. Coble of Richmond, Indiana, as president, succeed-

FLIGHT MAGAZINE

OCTOBER, 1960 VOL. 49, No. 10

THIS MONTH'S COVER introduces the Cessna CH-1C Skyhook, a 4-place rotary-wing business and industrial aircraft placed on the commercial market for the first time this month. It is being sold and serviced through Cessna distributor-dealers all over the world. With a 3,100-lb. gross weight, the Skyhook has a 1,020-lb. useful load and is powered by a supercharged Continental FSO-526A engine rated at 270 hp. net after fan-cooling. For first and complete details, see page 24. —(Cessna Photo.)

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Just Among Ourselves—EDITORIALS: THE BACK-TO-SCHOOL MOVEMENT; THE TRADE SHOW PROBLEM 17

Cessna Skyhook for Business—COMMERCIAL MARKETING LAUNCHED WITH FIRST ROTORCRAFT SOLD AND SERVICED BY AIRCRAFT DEALERS 24

Tricycle Gear for Beech Twin—WEST COAST MODIFICATION ADDS NOSEWHEEL TO VENERABLE TWIN BEECH 27

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GEORGE E. HADDAWAY, Editor-Publisher; TOM ASHLEY, Managing Editor; FRED N. STONES, JR., Business Manager; LOUISE ROBERTSON, Circulation; E. H. PICKERING, Consultant; P. O. Box 750 (2700 N. Haskell Ave.), Dallas, Texas — Telephone TAylor 3-6191.

FLIGHT MAGAZINE, October, 1960, Vol. 49, No. 10. Published Monthly. Publication Office, P. O. Box 750 (2700 N. Haskell Ave.), Dallas, Texas. Price 50 cents single copy. Subscription rates: United States, one year, $3.00; two years, $5.00; three years, $6.00. Established February, 1934. Entered as second-class matter at the Post Office, Dallas, under the act of March 3, 1879.

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What does the PROFESSIONAL Pilot think of KING?

"My King KY-90 gives me the feeling of confidence a pilot needs..."

"As a professional pilot, I investigated the King KY-90 Transmitter/Receiver thoroughly before I had one installed in our Company Cessna 310... Authorized radio repairman told me the KY-90 was well designed and constructed for dependable operation. Pilots using it told me the KY-90, with its ten-watt power, performed beyond anything they had seen for its size and weight. Upon checking Coast Geodetic Enroute Charts, Terminal Area Charts and the Flight Information Manual, I discovered that the 90 channels covered by the KY-90 are all that are authorized for use under 24000 ft. in our type of operation. Additional frequencies and the extra weight they would require would not only be wasted, but would cost a great deal more. Now, after using my KY-90 as primary communications for 215 trouble-free hours, I can honestly say that I wish *all* my radio equipment was King."

Ed Wigton

Here's the 10-WATT KING KY-90 Transmitter/Receiver that Ed Wigton likes so well. You also will appreciate the 10-watt power that provides extra "reach" and louder, clearer signal... the simple, front-panel controls... the small size (only 3"x6½"x8") ... the lightness, only 8 pounds... and the reasonable cost, only $795.

Ask Your KING'S MAN...

Authorized King Dealers are carefully selected. Each has a completely equipped radio shop with personnel highly qualified to install and maintain aircraft quality electronic equipment. Each King Dealer is competent — and willing — to discuss fully with you the radio equipment you need and make realistic, economical recommendations.

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LET YOUR KING'S MAN SHOW YOU HIS FULL LINE OF PROFESSIONAL AIRCRAFT EQUIPMENT, TODAY!

KY-90 TRANSMITTER/RECEIVER. 10-watt output. 90 channels—plus DCS. 118.0 to 126.9 MC. Synchronous tuning of transmit and receive. Long reach combined with sensitivity, crisp clear speech. $795.

KR-40 NAV RECEIVER. Complete NAV coverage—100 crystal-controlled channels. One microvolt sensitivity. Operates KI-200 Converter-Indicator. Built-in power supply and speaker amplifier. $435.

KX-100 NAV and COMM. Unit. Simultaneous NAV and COMM combining all features of the KY-90 and KR-40. Crystal-tuned, compact. A step ahead for tomorrow's needs as well as today. $1095.

KI-200 OMNI-LOCALIZER CONVERTER-INDICATOR Provides steering indication on both Omni and Localizer operation, switching automatically, electronically. A self-contained unit in a standard instrument case. Airline accuracy. $645.

Sold through franchised dealers in U.S. & Canada. Export by R.E.A. International, 80 Broad St., N.Y.

KING RADIO CORP.

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ing Dr. C. M. Starr of Hollywood, Calif.

FACTORY MODIFICATION FOR HIGHER FREQUENCY will be offered by Motorola Aviation Electronics for Navcom-100 equipment, extending its frequency range to 135.95 mc with 50-kc spacing. Paul Momenteller, Motorola marketing manager, said the factory service is offered to protect the investment of hundreds of aircraft owners who operate the equipment, starting modifying in November. Motorola will also offer the Navcom-100 with 135.95-mc coverage and 50-kc spacing as original equipment and will retain 126.9-mc coverage with 100-kc spacing in their product line. FAA has announced intentions to specify 50-kc spacing, with frequency stabilization standards increased to .005, by July, 1963, with frequency limits increased through 135 mc.

OVERHAUL LIFE OF 3,000 HRS. has been authorized for Rolls-Royce Dart turbine engines on Trans-Canada Air Lines' Vickers Viscount airliners. . . . **OVERHAUL LIFE OF 1,400 HRS.** has been authorized by FAA for Continental Airlines' Pratt & Whitney JT3 turbojet engines on Boeing 707 airliners.

CESSNA AIRCRAFT HAS STARTED $400,000 OFFICE BUILDING ADDITION at its Pawnee plant in Wichita. It will house the firm's newly organized marketing division and will include a rooftop heliport.

"COMMUNITY PLANNING FOR AIR TRANSPORTATION" is title of a new manual available at $2 from the National Association of State Aviation Officials, 1101 Vermont Ave., NW, Washington 25, D. C. A. B. McMullen, NASAO executive director, said it is intended as a guide for persons interested in obtaining, retaining and developing commercial air transportation in their communities and to facilitate improved and more effective presentations to the Civil Aeronautics Board. It was authored by Robert E. Redding, former assistant to two CAB members.

FOURTEEN DHC-2 BEAVER UTILITY TRANSPORTS have been ordered from de Havilland Aircraft of Canada by the government of Ghana and first deliveries will be made in December to the African nation, which will use the Beavers for personnel travel, air ambulance work and aerial surveying.

FACTORY-LEVEL SERVICE agreements with flight equipment service stations are being established by the commercial air transport sales department and service division of Lear, Inc. Lear said agreements were signed with Flight Electronics, West-

THE SUPER-V IS HERE!

GREATEST LIGHT TWIN VALUE IN HISTORY — The Super-V conversion of the single-engine Bonanza into a high performance light twin brings you a plane that's unparalleled in speed...range...value...

You get: Two *new* Lycoming 0-360 engines • nacelle only 22" deep • approved, unitized "jetline" Fiberglas nose section and nacelles • high acceleration and speed • unexcelled short field performance • integral leading edge aux tanks • proven single engine performance with the famous "V" tail.

Speed: Over 200 mph at normal cruise.

Range: 1,180 miles at maximum cruising speed • 1,250 at 65% power • 1,400 at 50% power.

Value: $22,500 firm price for basic conversions • complete financing available.

IMMEDIATE AVAILABILITY: Conversions available to present owners... converted airframes also available to new buyers. Contact Dept. D Oakland Airmotive for complete details... ask for the new brochure on the Super-V... the unbeatable light twin value.

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obtains two plus values available nowhere else. One is Continental's famous reliability; the other, the priceless backing of genuine Continental parts and factory-approved service no matter where he may fly.

After engine dependability, the most important thing to consider in choosing an airplane is the service behind it—the facilities maintained by its makers to keep it in the air at lowest cost. And here, as on the basic score of engine stamina, planes with Continental power rate uniformly high . . . Owners of such aircraft are sure of finding genuine Continental parts and competent mechanics the world over . . . They benefit in other ways, too, from Continental's policy of backing those who build and those who use Continental-powered products.

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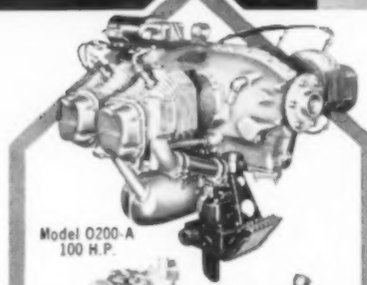
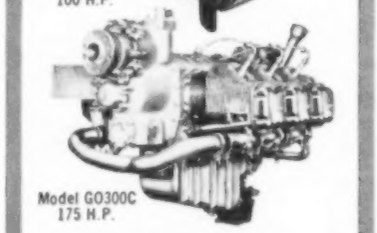
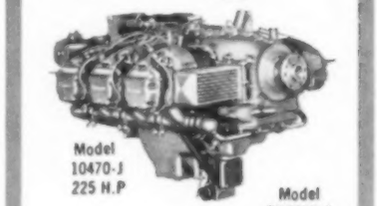
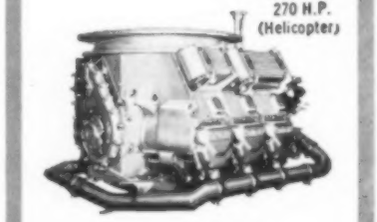
C90	95	2625	4	207	80/87
O200-A	100	2750	4	190	80/87
O300-A B & C	145	2700	6	277	80/87
GO300-C	175	3200	6	312	80/87
O470-15***	213	2600	6	405	80/87
E225	225	2650	6	363	80/87
O470-K & L	230	2600	6	404	80/87
O470-M	240	2600	6	409	91/96
O470-G	240	2600	6	432	91/96
O470-H*	240	2600	6	472	91/96
I0470-C	250	2600	6	432	91/96
I0470-D	260	2625	6	426	100/115
I0470-F	260	2625	6	426	100/130
I0470-J	225	2600	6	402	80/87
I0470-K	225	2600	6	391	100/130
FSO526-A**	270	3200	6	575	91/96
GSO526-A	340	3100	6	549	91/96

*Pusher Type engine with extended propeller shaft
**Helicopter engine ***For Military use









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chester County, N. Y.; Piedmont Aviation, Winston-Salem, N. C., and Ozark Aviation, Rockford, Ill. They will lend customers replacement units for the Lear flight equipment needing repair or overhaul. Each of the stations will provide parts inventory and staffs for installation, repair and overhaul and will serve as a licensed Lear flight equipment sales agency. Lear Service Division also operates major overhaul and repair facilities at Santa Monica, Grand Rapids and Harrisburg, Pa., and is evaluating additional stations in Dallas and Los Angeles.

FLIGHT TEST GUIDE FOR PRIVATE PILOTS, an FAA pamphlet outlining what an applicant for a private pilot's license must do to pass his flight tests, is being reprinted to meet demand. An FAA guide for multi-engine ratings is also available and guides are planned for commercial, instrument and flight instructor ratings. Those for private pilots and multi-engine ratings are available for 10 cents from the Government Printing Office, Washington 25, D. C. . . . **FAA HAS EASED REQUIREMENTS FOR FLIGHT INSTRUCTOR CERTIFICATES** by eliminating the need for an applicant to serve one year from the time he receives his limited certificate before becoming eligible for a full certificate. A new ruling retains the provision that the applicant must train five successful candidates but makes him then immediately eligible for the full certificate.

JOHN F. ALLEN has been promoted to be manager of product development for Beech Aircraft Corp. . . . **ROBERT J. GEIS,** formerly with Aero Design & Engineering, is now director of executive aircraft sales for Air Carrier Service Corp., Washington, D. C., worldwide sales organization and Aero Commander distributor. . . . **MAX ELBAUM,** formerly with Consolidated Vultee and Flight Enterprises, Inc., has been named chief modification engineer at L. B. Smith Aircraft Corp., Miami, by Ed Brush, engineering vice president. . . . **RALPH WHITENER** is new director general of the National Aeronautic Association. . . . **J. R. MUEHLBERG** has succeeded Robb C. Oertel, retired, as manager of aviation sales for Esso Standard Oil.

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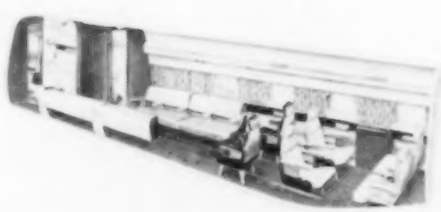
the proven performance of conventional power...



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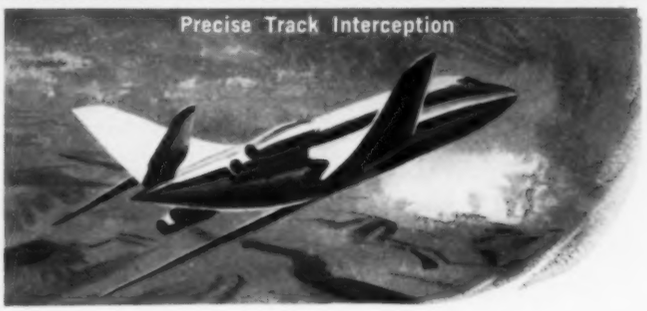
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COURSE DIRECTOR

Steering Data from Four Methods of Navigation, Presented on ONE Indicator

The ease with which ARC's CD-4 Course Director adapts itself to every area of operation adds a new dimension to your flying technique.

SELECT MODE, SET TRACK, CENTER NEEDLE

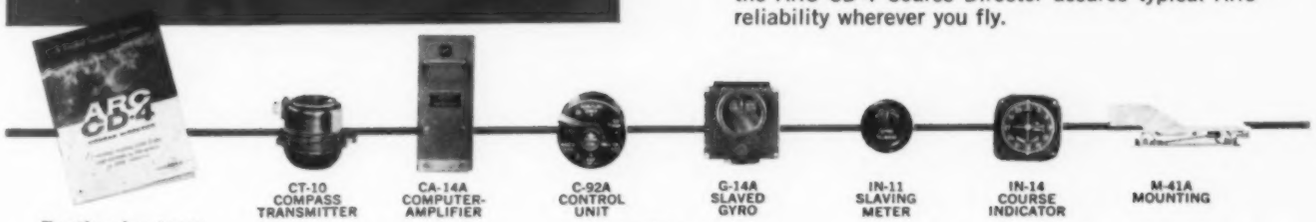
With the CD-4, you simply select the mode of operation... VOR, ILS, ADF, or Magnetic Heading... set in the desired track information, and steer the plane to center the vertical needle. Instantaneous steering information is then computed and continuously displayed on one indicator. All enroute flying, holding, and terminal approach procedures are identical.

NO MENTAL GYMNASTICS

Exacting mental calculations are no longer required. The CD-4 does it for you! It tells you how to intercept and maintain the desired course. Recalculation of headings to compensate for wind is not necessary. Your only requirement is to keep the needle on the cross pointer indicator centered.

And... the total added weight to your aircraft is only 8.5 pounds.

Engineered to the highest standards of quality, the ARC CD-4 Course Director assures typical ARC reliability wherever you fly.



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ARMY'S NEWEST OPERATIONAL HELICOPTER CLAIMS NEW SPEED, DISTANCE AND CLIMB MARKS!

*The new records:**

1. Climb to 3,000 meters (9,843 feet), Class E-1:
   Current record: 5:30.6 minutes - held by French Alouette
   HU-1 record claim: 3:22.4 minutes—Pilot, Maj. Boyle

2. Climb to 6,000 meters (19,686 feet), Class E-1:
   Current record: 11:0.1 minutes - held by French Alouette
   HU-1 record claim: 8:10.2 minutes—Pilot, Maj. Boyle

3. Non-Stop Distance, Closed Circuit, Class E-1d:
   Current record: 345.1 miles—held by Russian MIL-1
   HU-1 record claim: 441.74 miles—Pilot, Maj. Boyle

4. Speed Run, 3 kilometers (1.864 miles), Class E-1d:
   Current record: none
   HU-1 record claim: 158.05 mph—Pilot, CWO Turvey

5. Speed Run, 100 kilometers (62.14 miles), Class E-1d:
   Current record: 130.8 mph—held by Russian MIL-1
   HU-1 record claim: 142.2 mph—Pilot, CWO Turvey

6. Speed Run, 500 kilometers (310.69 miles), Class E-1:
   Current record: 136.02 mph—held by US Army H-34 (Sikorsky)
   HU-1 record claim: 148.45 mph—Pilot, Col. Marinelli;
   Co-Pilot, CWO Turvey

7. Speed Run, 500 kilometers (310.69 miles), Class E-1d:
   Current record: 122.07 mph—held by Russian MIL-1
   HU-1 record claim: 148.45 mph—Pilot, Col. Marinelli;
   Co-Pilot, CWO Turvey

**Note:* All flights were under supervision of the National Aeronautical Association, and the HU-1's record claims have been submitted to the Federation Aeronautique Internationale and the N.A.A. for official recognition. Class E-1 is for all helicopters, irrespective of weight. Class E-1d is for helicopters between 3858 and 6614 pounds gross take-off weight.

THE MACHINE — *The turbine-powered Bell HU-1 Iroquois* is the first helicopter to be designed and built to Army specifications. It has a useful load of almost two tons and is capable of high speed flight carrying nine fully-equipped men, or performing tactical field maneuvers from suppressive fire missions to medical evacuation. The versatile HU-1 is now operational with 17 Army units, four of which are STRAC divisions. It will join 5 more commands before the year's end.

The "X" mid-side of the HU-1 marks the spot which N.A.A. observers used to make photo records and set timers during test runs.

THE MEN — Pilots for the new HU-1 during its record shattering flights were three veteran Army airmen, members of Fort Rucker's Army Aviation Board: Colonel Jack L. Marinelli, board president and the holder of two 500 kilometer speed records; Major Garrison J. Boyle, project officer and holder of records for 3,000 and 6,000 meter climbs, and the closed course distance record; and Chief Warrant Officer Clifford V. Turvey, project officer and holder of the 3 and 100 kilometer speed marks.

CWO Turvey and Maj. Boyle check course maps prior to speed record trials.

THE METHOD — The record breaking flights were made in a demanding eight-day series of tests at Fort Worth, Texas, home of Bell Helicopter, manufacturer of the new HU-1. During the flight periods, sealed instruments aboard the ship and timing stations manned by N.A.A. personnel at points on the measured courses, kept official data of the record attempts.

Col. Jack Marinelli returns from the 500 kilometer course after averaging 148.45 mph. Ground temperature during this phase of the record attempts reached a high of 98 degrees. Gusty winds also were encountered.

FOR OPERATIONAL TURBINE-POWERED FIRSTS, LOOK TO BELL
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DIVISION OF BELL AEROSPACE CORPORATION • FORT WORTH, TEXAS

SAFER, FASTER, SMO

the all new SPEED-LINE

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No other business twin combines so many essential fe

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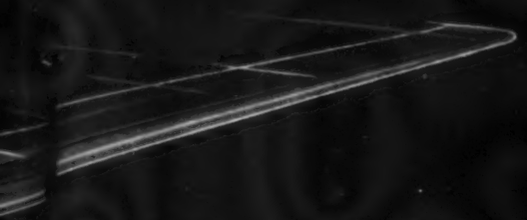

Even greater single engine capabilities than before, greater short field flexibility add to the flying safety of the Aero Commander.

New Speed-Line nacelles—actually an airfoil design—and increased power provide improved rates of climb, speed and performance!

Smooth-running fuel injection engines, new dynamic propeller balancing, forged engine mounts add greatly to Aero Commander's smoother-flying comfort.

The whisper-quiet cabin is the result of an over-the-wing exhaust system and a more effective method of sound insulating.

No other aircraft in its class provides the safety, performance and comfort of the all-new Aero Commander.

Fly it once and you'll know why. Contact your nearest distributor for details—today.

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AERO COMMANDER

subsidiary of ROCKWELL - STANDARD CORPORATION

This great fuel control test bench and the skilled young man operating it are symbolic of the strength and vigor with which Southwest Airmotive tackled the Jet Age.

Not only was the firm first of its kind five years ago in overhauling jet engines; it was — and is — the only commercial operation to succeed with the whole "ball of wax," including the overhaul and test of basic accessories.

I'm watching the test of a JT4 jet engine fuel control for a Douglas DC-8. Nearby, technicians are busy with other accessories for airline JT4s and for military J35s and J33s. It is typical of Southwest Airmotive that, when it went ahead with jets, it went all the way!

Southwest Airmotive Co., Dallas

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1st with Jets

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EDITORIALS

The Back-to-School Movement

ONE of the healthiest signs along the airways today is the upsurge in flight training, all the way up the line from primary instruction to proficiency and refresher training. The re-entry of our retail airplane organizations into the flight training business is perhaps the most encouraging element of renewed activity in this field.

Apparently the boom in flight training has come about because people in the sales and service end of the business realize that they can no longer depend entirely upon the replacement market and the upgrading of current airplane owners. While this has been the backbone of the utility aircraft market and no doubt will continue to be for the immediate future, it is fairly well admitted in all areas that a constant flow of new pilots is necessary to sustain the used plane market and to expand the market for new production.

From the pilot and owner's standpoint, more and more airmen are concerned with the poor safety figures which run to a well-known pattern. Through the aviation trade press and through various aviation organizations, the word is getting around that it's smart to seek proficiency and mighty good insurance to get a check ride occasionally and take refresher ground school courses in order to keep up with the business and to avoid acquiring any bad flying habits. Even our professional pilots who just a few years ago left the impression that they were "know-it-alls" are now going back to school. One company in California is now providing a jet familiarization course with the MS-760 "Paris" airplane.

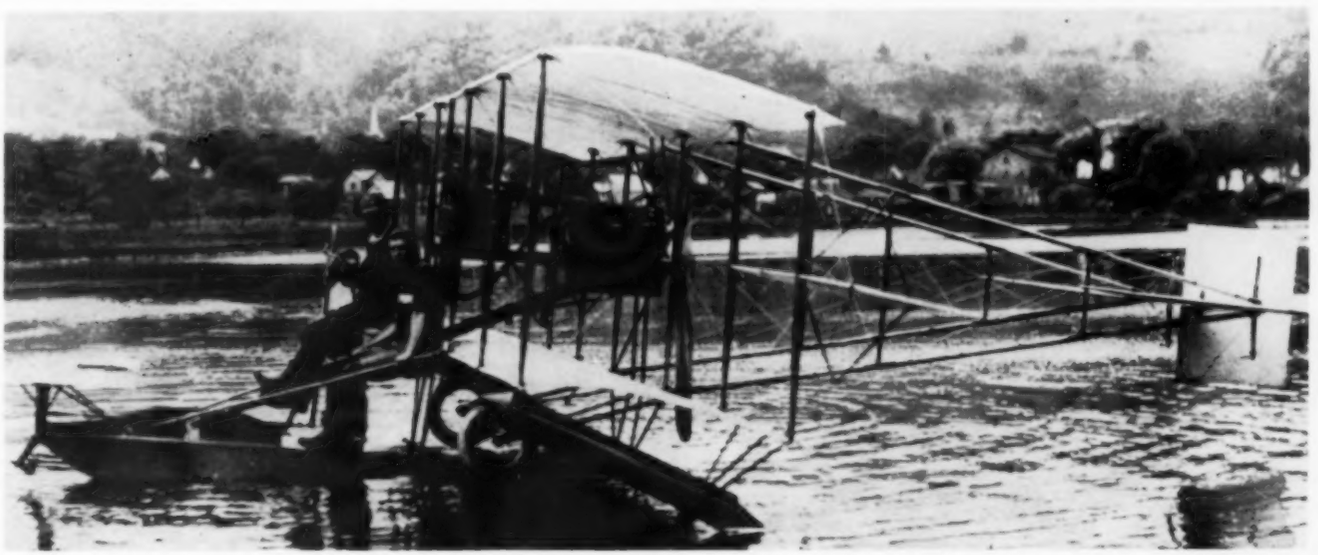
The most important trend in this back-to-school movement has to do with the growing number of pilots seeking instrument tickets. Here again the work of the aviation trade press, dedicated aviation companies and aviation organizations concerned with safety, is paying off handsomely. It's quite clear that many pilots are reading the implications of weather accidents loud and clear

What impresses us most, however, is the high quality of training the average new student or advanced pilot can now get if he does a little research. We still and probably always will have some classic examples of shoddy instruction. But the trend is definitely toward perfection of the art with all the latest audio-visual and ground training aids which have made obsolete all the devices and methods used during and immediately after World War II.

Somebody ought to give our flight training people a great big hand! Maybe the industry will recognize them at some of the forthcoming conventions.

The Trade Show Problem

VARIOUS segments of the aviation industry are beginning to complain about the high cost of sending out representatives and exhibits to the numerous displays held in conjunction with association conventions. We dare say the complaints would not be so numerous or loud if

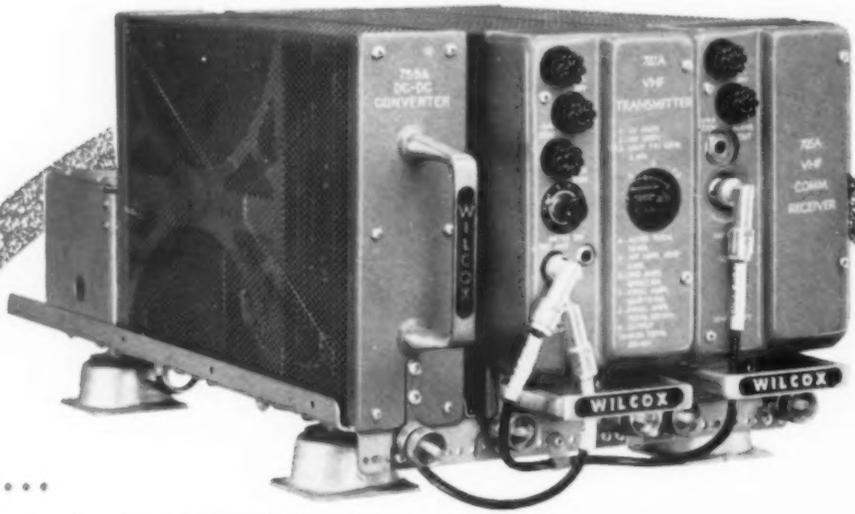


U. S. NAVY'S FIRST AIRPLANE was this Curtiss A-1 hydroairplane, pictured with the Navy's first pilot, Lt. T. G. Ellyson, receiving instruction in 1911 from Glenn H. Curtiss. In commemoration of the 50th anniversary of Naval aviation in 1961, a replica of the first Navy plane is being fabricated by aircraft plants in Southern California, without compensation and under a project sponsored by the Institute of Aeronautical Sciences, San Diego. First Navy flights were made at San Diego. In historical photo above, Curtiss has the controls while his student, Ellyson, rides and watches the master.

—(Ryan Aeronautical Photo.)

Introducing the NEW *wilcox* VHF "Comm" System . . .

FAA Certificated for Airline and Business Aircraft!



With . . .

- Completely transistorized power supply
- 560 crystal controlled receiving channels
- 360 crystal controlled transmitting channels
- Complete system weighing only 37.5 pounds

These, plus many additional features, make the Wilcox VHF Communications System the finest available.

This complete airborne installation consists of a Model 705, 560 channel receiver; a Model 707, 360 channel transmitter; a Model 755, transistorized power supply and combination shockmount.

The receiver provides 560 channels with 50 kc spacing from 108.00 through 135.95 mc; while the transmitter provides 360 channels with 50 kc spacing from 118.00 through 135.95 mc.

The Model 755 DC to DC Converter is transistorized, weighs only 8.75 pounds, and supplies both 250 and 500V DC at 250 and 320 milliamperes, respectively. A unique cast aluminum "heat sink" protects the transistors from excessive heat buildup.

For additional detailed information and specifications, write, wire or phone . . .

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Fourteenth & Chestnut Sts.
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ALSO AVAILABLE

MODEL 756
TRANSISTORIZED POWER SUPPLY
Size: 10⅞" L x 4" W x 3" H
Weight: 4.75 lbs.
Power Output: 250 V DC @ 500 ma., cont. to 71° C
Power Requirements: 27.5 V DC @ 7 amps.
Transient Protection: **"Spike Swallower"** circuitry included

MODEL 754
TRANSISTORIZED POWER SUPPLY
Size: 2" W x 2" H x 5" L
Weight: 15 oz.
Power Output: 250 V DC @ 100 ma., cont. to 71° C
Power Requirements: 27.5 V DC @ 1.0 amp.
Transient Protection: **"Spike Swallower"** circuitry included

CITY CENTER HELIPORT FOR GROWING ROTARY-WING AIRCRAFT TRAFFIC was dedicated recently by City of Ft. Worth, Texas, which built the helipad itself for only $3,000 in 30 days after getting the go-ahead. It is located atop a corner of a levee at a river fork only 1.2 miles from heart of downtown and 400 ft. from a large motel. Fenced and paved helipad is lighted and has wind gauges. New municipal heliport has clear approaches and acres of turf for parking of up to 200 helicopters. It was planned cooperatively by Meacham Field Manager William Fuller and Bell Helicopter Co. experts, including Floyd Carlson, chief pilot and rotary-wing pioneer; Joe Mashman, market development director and one of the world's leading helicopter-heliport authorities, and Harry Miller, export sales administrator who helped select heliport sites in Chicago 12 years ago.

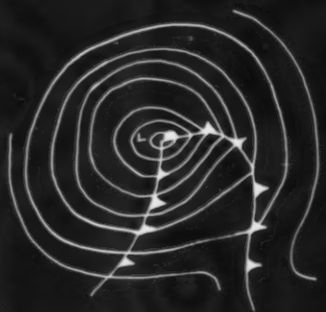
they felt they were getting some profit back on the dollars expended.

Last month we attended the National Business Aircraft Association annual meeting in Los Angeles and the Air Force Association meeting and Aerospace Panorama in San Francisco. Both were considered highly successful affairs in their specific fields of interest. NBAA drew about 800 registrants and the Air Force Association, which beats the drum for the U. S. Air Force, attracted some 3,500 souls — many from industry, a considerable amount of Air Force brass and a few airpower enthusiasts representing local AFA chapters over the country.

Trouble is that the NBAA registration list was made up largely of industry people and not too many customers. As an industry show it was great. It was especially good for the trade and for the trade press. But what the manufacturers and suppliers need to justify the expenses involved is prospective customers. They were lacking in Los Angeles.

In San Francisco you received the impression that many companies participated because they were afraid not to — a sort of defensive operation. We did not stay to see how many San Franciscans dropped in on the one day the Aerospace Panorama was open to the public but we imagine the crowd

positive protection against carburetor icing



Carburetor ice—a condition that every pilot knows—and dreads—since ice may cause a sudden fuel shut-off and power loss.

But now, owners of aircraft with R1820 engines (Lodestar, Learstar, DC-3, Super DC-3) or R2800 engines (Convair 340, 440) need worry no longer about carburetor ice. This problem is solved by PacAero's Alternate Fuel Metering System, 100% successful in every installation, fully FAA certificated.

The Alternate Fuel Metering System offers positive protection against boost venturi and impact tube icing, by allowing unmetered fuel pressure to open the ice-locked poppet valve, thus providing instantaneous emergency engine power.

This modification is needed *now* on every R1820 and R2800 engine. It is immediately available at PacAero or through your service facility. Call or write for detailed information.

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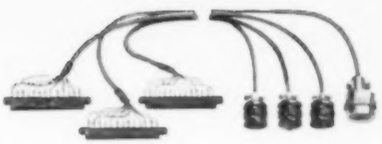
A subsidiary of Pacific Airmotive Corporation, Burbank, California

Other PacAero Specialties: World center for Convair service, modification, and conversion to Allison propjet; custom design and installation of interiors; radar installation; fuel system expansion; overhaul and service; navigation, communication, electronic installation; airframe overhaul; painting; Spraymat anti-icing, de-icing systems; Learstar manufacture.

NAV COM 100: START OF THE FINEST NAV/COM SYSTEM IN THE WORLD!

MOTOROLA *Aviation Electronics Inc.* A SUBSIDIARY OF MOTOROLA INC.

See your local Motorola/Lear dealer for immediate delivery



This interconnect cable lets you easily expand your navigation-communication capability starting with Motorola's NAVCOM 100. Simply plug in each additional unit when you're ready. No rewiring, tearing, no cutting.

Start with this powerful VHF receiver and transmitter unit (also available in side-by-side mount for standard 6¾" opening). Transmits up to 280 channels and receives up to 460 channels, with 50 KC. separation capability.

14 volt including Shockmount. $1095

Add on airline-type navigation with complete VOR/LOC capability including 4080 indicator, aural marker beacon receiver, automatic omni and localizer switching.

14 volt including Shockmount. . $400

Add on easy-safe approach equipment with this complete ILS glideslope receiver... 10 channels... automatic glideslope receiver channel selection.

Model 5607D Glideslope Receiver, 4087 Indicator and Shockmount $930

See your local Motorola/Lear dealer for *free booklet*, "HOW TO FLY VOR"...or write: Motorola, 3302 Airport Ave., Santa Monica 5, Calif.

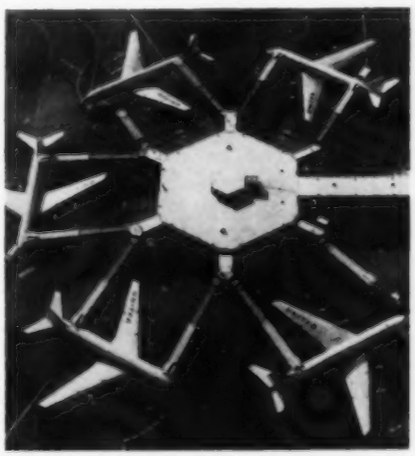
MOTOROLA
Aviation Electronics Inc.
A SUBSIDIARY OF MOTOROLA INC.
3302 Airport Ave., Santa Monica, California

was considerable. During the AFA convention sessions the exhibit hall was almost completely devoid of people and rarely did we see any Air Force brass around at any time. Top aviation industry executives and military rank remained downtown at the hotels. The only thoroughly happy exhibitor was a model airplane manufacturer who was doing a land office business.

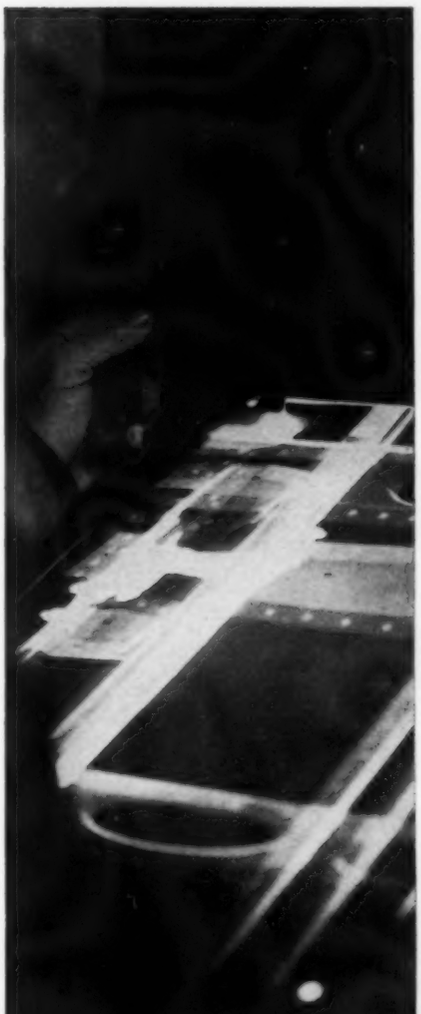
Is the expense justified, particularly in those cases where defense dollars are being spent? We wonder. And the companies are beginning to wonder, too, just what tangible results they're getting for their money.

Our advice to the so-called "non-profit" organizations that sponsor such industry exhibits would be to seek ways and means to reduce costs to the exhibitors and increase attendance. Unless they can come up with a more realistic type of exhibition for less money, a lot of companies are going to drop out (particularly the smaller, specialized concerns that simply can not keep up with the behemoths of American industry).

Unless organizations like the NBAA can produce more prospective customers of commercial products and unless military lobbying groups like AFA show more justification for their extravaganzas from a public interest standpoint, we fear the much needed trade shows will go down the drain. We need good trade shows both from a commercial and military standpoint. But they will defeat their own purpose if they continue to put all their emphasis on promoting the people who pay the bills and ignore or neglect the principal reason for having a show — to do more business.



JET PASSENGER TUBES provide all-weather shelter for boarding and leaving DC-8 jet airliners at United Air Lines' terminal on San Francisco International Airport. Telescopic corridors are called "Jetways." In the picture, they facilitate the handling of passengers on five DC-8's simultaneously, using two corridors per plane.



aero x-ray looks thru metal to find hidden flaws!

Aero X-ray "eyes" quickly spot trouble in aircraft before it starts. An X-ray checkup is fast, sure, complete. It eliminates strip-downs, excess downtime. Call Tom Lombardo for an appointment.

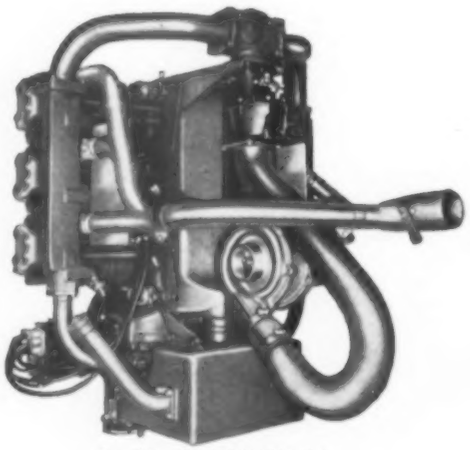
Telephone POplar 1-7721, Atlanta Airport, Atlanta, Georgia.

FAA Certificate 3650

Aero CORPORATION OF **Atlanta**

COMPLETE FACILITIES FOR CONVERSION, MAINTENANCE, OVERHAUL OF AIRCRAFT • HELICOPTERS • ENGINES PROPELLERS • CUSTOM INTERIORS

When you have to fly at altitudes like this, you need a Bell 47G-3 with Franklin turbo engine



Franklin 6VS-335 225 H.P.
Turbosupercharged Engine
FAA Type Certificate No. 1E2

At 15,000 feet, the Franklin turbosupercharged engine in the Bell 47G-3 produces the same solid 225 h.p. as it does at sea level. With this helicopter and this engine, you can forget the old problem of how much you can lift at a given altitude. You can lift the rated payload of 1,111 lbs. right over the top of any ordinary mountain! Ask your Bell Helicopter or Franklin Engine representative for full details.

Franklin
FINE AIRCRAFT ENGINES

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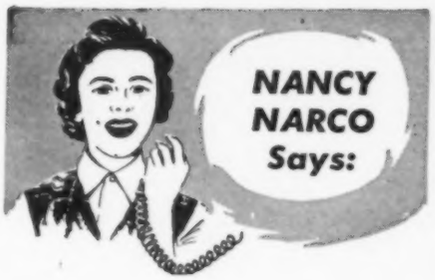


MIKE FRIGHT

Perhaps we'd better chalk up this one as a little pep talk for the benefit of the not inconsiderable number of people who have such a case of mike fright that they're afraid to use the radio in their airplanes.

Worry #1 seems to be the misconception that all inhabitants of control towers are large, hairy gorilla types, with horns on their heads, claws instead of fingernails and built-in disdain for anyone short of an airline captain.

Such a concept couldn't be more contrary to the truth. Just visit a tower and you'll see for yourself. Visits by students and private pilots are encouraged, incidentally, for just this reason (if things aren't too hectic). When you get to the tower, note carefully the absence of horns and claws on any of the controllers. Note that they're really human beings. Then remember that the only reason they're getting paid is to help insure *your* safety. Many of them are pilots themselves; all know and understand your problems. You'll find FAA controllers, as a group, the most patient people in the world.

Worry #2 seems to be fear that you won't understand what the tower says. Admittedly, the first few times you listen to a tower the words don't seem to make much sense, but you soon become accustomed to the phraseology. In the meantime, if they're rattling off instructions too fast, just ask the man to give it to you a little slower. Unless you're at a very busy airport where they haven't much time to spare (and where you shouldn't be until you have more experience) they'll go out of their way to talk slowly if they sense that you're a "new boy."

Worry #3 seems to be a fear of not using the correct phraseology. Clear, concise radio transmisisons are recommended to avoid unnecessary clutter, but such parlance is ***not mandatory***. As you use radio more, you'll naturally develop the lingo because it's the logical way to say certain things quickly. But don't be afraid to talk. Just think of your radio as a telephone, which you probably use with the greatest of ease and nonchalance.

Your radio's your best friend in the air. Don't be afraid to use it.

Regards,

Nancy

NARCO • Fort Washington, Pa.

NOW ADD VOR/ILS TO YOUR
Sapphire 1016/1016 A, Mark V or Simplexer

narco **CS-5**
Cross Pointer
for High Accuracy
VOR/ILS
Navigation

PLUS
Glide Slope Indicator

Now Narco offers this six-in-one navigation presentation for use with the Narco VOA-3 VOR/LOC converter which can be attached to your Sapphire 1016/1016A, Narco Mark V or Simplexer.

In one simple, compact, panel-mounted instrument you get VOR/ILS localizer guidance, glide path indication, TO-FROM flag, selected and reciprocal course information plus fail-safe flag alarms.

The new CS-5/VOA-3 combination gives you a deluxe, super reliable basic VOR/ILS navigation system with a high degree of accuracy for which Narco equipment is already justly famous. When used with Narco Sapphire equipment or the new Mark V, you have the added advantage of quick, automatic crystal-tuning to the station you want.

DUALIZE YOUR OMNI

The Narco CS-5/VOA-3 is the perfect answer to the growing requirement for two separate Omni systems, for added safety and position indication over the increasing number of VOR intersection reporting points. If you already have a basic Omni-navigation system plus auxiliary communications equipment such as the Sapphire or Simplexer, merely add the CS-5 indicator system. Added weight, only 4 pounds plus glide slope receiver (Not supplied).

CS-5 indicator with VOA-3A converter $699

CS-3A—Narco also offers the CS-3A VOR/LOC indicator which has all the features, accuracy and reliability of the CS-5 with the exception of glide slope indicator and flag.

CS-3A indicator with VOA-3A converter $499

narco **See your Narco distributor or write for information on this fine Narco equipment.**

narco

NATIONAL AERONAUTICAL CORP., FORT WASHINGTON, PA.

Its 270-hp. supercharged engine up front as in a conventional airplane, Cessna Skyhook features roomiest 4-place cabin of any rotorcraft, with 360-degree visibility. It is being marketed through worldwide Cessna dealers.

—(Cessna Photo.)

Cessna Skyhook For Business

NEWEST Cessna on the commercial market is a 4-place rotary-wing business and industrial-use aircraft called the "Skyhook," a name which literally describes its hovering and vertical take-off-and-landing capabilities. It sells for $79,960.

Skyhook marketing is being launched this month through its worldwide sales and service network by Cessna Aircraft Company, which thus becomes the first fixed-wing manufacturer to branch into the rotary-wing field and first to market rotorcraft through an extensively-organized network of sales and service outlets.

In announcing the move, Dwane L. Wallace, president, said Cessna anticipates increased rotorcraft use and expanding market potentials "in the light of the rapid evolution of today's transportation and utility concepts and the outstanding qualifications of rotary-wing vehicles for specialized missions

Note shoulder room in Skyhook cabin, with main rotor drive extending vertically between front seats. Baggage is behind back seats.

—(Cessna Photo.)

Cessna CH-1C Skyhook

Factory Data

Price		**$79,960**
Engine: Fan-cooled, supercharged Continental FSO-526A.		
Rating: 270 hp. net at 3,000-3,200 rpm. up to 8,000 ft.		
Engine Op. Range—		
Continuous, rpm.		**2,800-3,000**
TO for 5 mins., rpm.		**2,800-3,200**
No. Seats		**4**
Max. Gr. Wt., lbs.		**3,100**
Empty Wt., lbs.		**2,080**
Useful Load, lbs.		**1,020**
Fuel Cap., gals.		**60**
Optional Fuel Cap., gals.		**90**
Max. Spd. (2,700 lbs.), mph.		**122**
Cruise Spds., mph.		**90-120**
Rate of Climb at 8,000 ft., fpm.		**1,030**
Time to Climb to 10,000 ft., mins.-secs.		**10-16**
Hovering Ceilings—		
In Grnd. Effect, ft.		**9,600**
In GE at 95 Deg. F., ft.		**6,500**
Cruising Range—		
Gals. Fuel	**60**	**90**
Statute Mi.	**260**	**400**
Hrs.	**3.37**	**5.15**
Main Rotor—		
Dia. ft.		**35**
Chord ins.		**13**
Disc Loading lbs.-sq. ft.		**3.22**
Tail Rotor Dia., ft.		**7**
Fuselage Length, ft.-ins.		**29-5**
Over-all Length, ft.-ins.		**42-6**
Height to Cabin Top, ins.		**85.9**
Height of Rotor, ins.		**96**
Over-all Height, ins.		**101**
Fuselage Width, ins.		**64**
Over-all Width, ins.		**99.75**

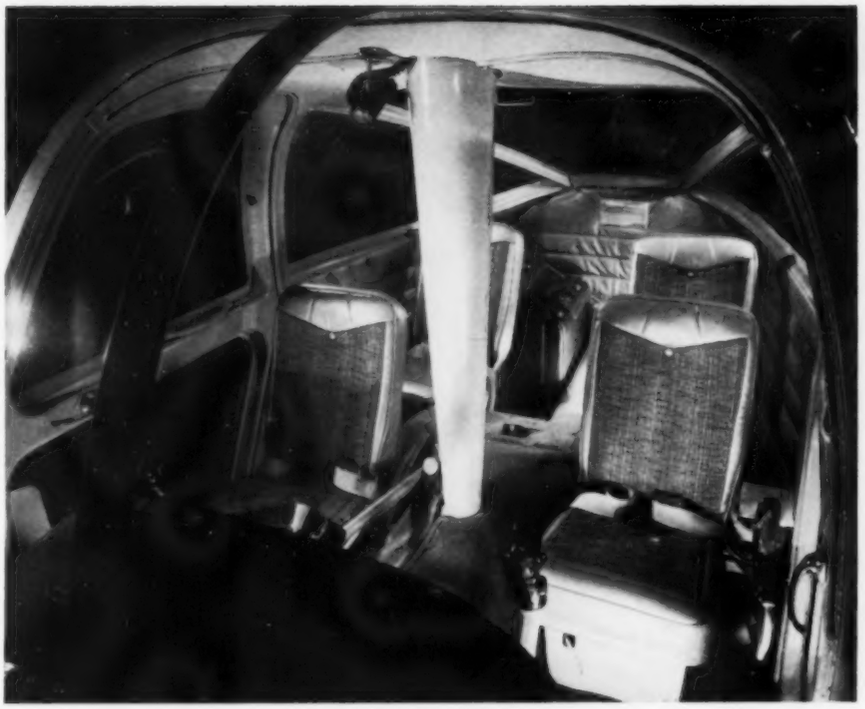
NOTE: Performance is for gross weight at sea level unless noted.

and shorter range requirements."

"We now enter this segment of the aircraft business only after extensive research and development have produced a dependable, economical, simply-maintained vehicle tailored specifically for business and industry needs," Wallace announced.

Rotary-wing performance gives the 4-place Skyhook operational versatility needed for pure VTOL advantages in operating to and from confined spaces such as parking lots, ramps and lawns adjoining industrial plants, city centers and other areas too small for fixed-wing aircraft. Its slow-flight, hovering, sideways and backward-flight performance is combined with high-speed cruise and high-altitude performance to make the Skyhook uniquely useful in scores of business and industrial applications beyond the capabilities of fixed-wing aircraft. In speed, Skyhook performance ranges from 0 to 122 mph. It is powered by a supercharged engine rated at 270-hp. (net after fan-cooling) up to an altitude of 8,000 ft. and altitude records approaching 30,000 ft. have been established by earlier models. Factory performance and specifications are listed in an accompanying table.

But Cessna's commercial marketing emphasis is centered on the Model CH-1C Skyhook's distinctive design features for simplicity and economy in operation, servicing and maintenance. These features are supported by the firm's widespread organization of sales and servicing out in the field through Cessna fixed-wing aircraft distributor establishments and their staffs, facilities and parts inventories.



View of large cabin from front shows Skyhook's extensive window area for 360-degree visibility and plush interior.

—(Cessna Photo.)

"Cessna's rotary-wing service frees the customer in the field from dependence on the factory for servicing and maintenance — no matter where the customer is, the nearest Cessna Skyhook distributor-dealer shop can satisfy his complete service and maintenance requirements, and these have been simplified," a Cessna spokesman pointed out. "Complete dealer field service such as this, which Cessna is perfecting through the largest fixed-wing sales and service network in the world, has never before been offered in rotorcraft. The impact is certain to increase the rotary-wing aircraft's usefulness and thus expand the market demand for Skyhooks all over the world."

Available now at the factory in

In this flight view, note Skyhook's glassed panels to floor at each side of instrument panel, giving pilot downward visibility for precise landings. Horizontal stabilizer is shown trailing at high speed. Skyhook's cruising speed is 90-120 mph.

—(Cessna Photo.)

Instrument panel in Skyhook contains Cessna's patented airspeed indicator (see close-up at right) on which pilot sets gross weight opposite altitude to automatically indicate maximum speed limit. Red-line speed varies on all high-performance rotorcraft with weight and altitude. Tube on collective control stick carries wires for starter and landing light switch, providing these functions along with throttle on collective stick for pilot's left hand. Right-hand cyclic control stick provides buttons for trim and communications. —(Cessna Photos.)

Wichita, Kansas, for demonstration, Skyhook deliveries to commercial customers are scheduled for some time in 1961, actual production schedules to be set following Cessna's annual international dealer sales meeting in late October. The Skyhook is already in production for commercial sales; in late September, the latest serial number was No. 15.

Since 1952, when Cessna established its rotary-wing department with the acquisition of the Seibel Helicopter Co., five different models have been CAA-FAA certificated. In 1955, one of them made the first landing and hovering tests on Pike's Peak in Colorado. A research quantity of CH-1's was delivered to the U. S. Army in 1957; one of them — piloted by a member of the Army Aviation Board — established world altitude records in two weight classes by climbing to nearly 30,000 ft.

The Skyhook model was first announced to the military as the CH-1C in April, 1959, and received FAA certification a few months later. Last June, an instrument-flying version of the Skyhook became the first and only rotary-wing aircraft ever to receive FAA certification for IFR operation under instrument weather conditions. It is being marketed initially, however, in only the VFR version due to the limited commercial requirement for IFR operations.

Flight stability previously unavailable in light rotorcraft and comparable to that of fixed-wing aircraft is claimed for the Skyhook, simplifying its piloting requirements. It features a built-in, mechanically-driven, 9-in.-diameter, 4-lb. gyroscope which has been patented as integral automatic stabilization equipment. This gyro is as much an essential component of the Skyhook as is the rotor and is driven by a shaft from the transmission. Completely free from electronics or tubes or black boxes, it (1) senses the rate of roll and (2) actuates the cyclic control through a mixing linkage with automatic corrective control input to the rotor system. This automatic control is provided without moving the pilot's control.

For longitudinal stability, the Skyhook features a horizontal stabilizer which is free-floating up to about 40 mph. At that speed, it moves against a stop and the stop then moves with changes in collective pitch.

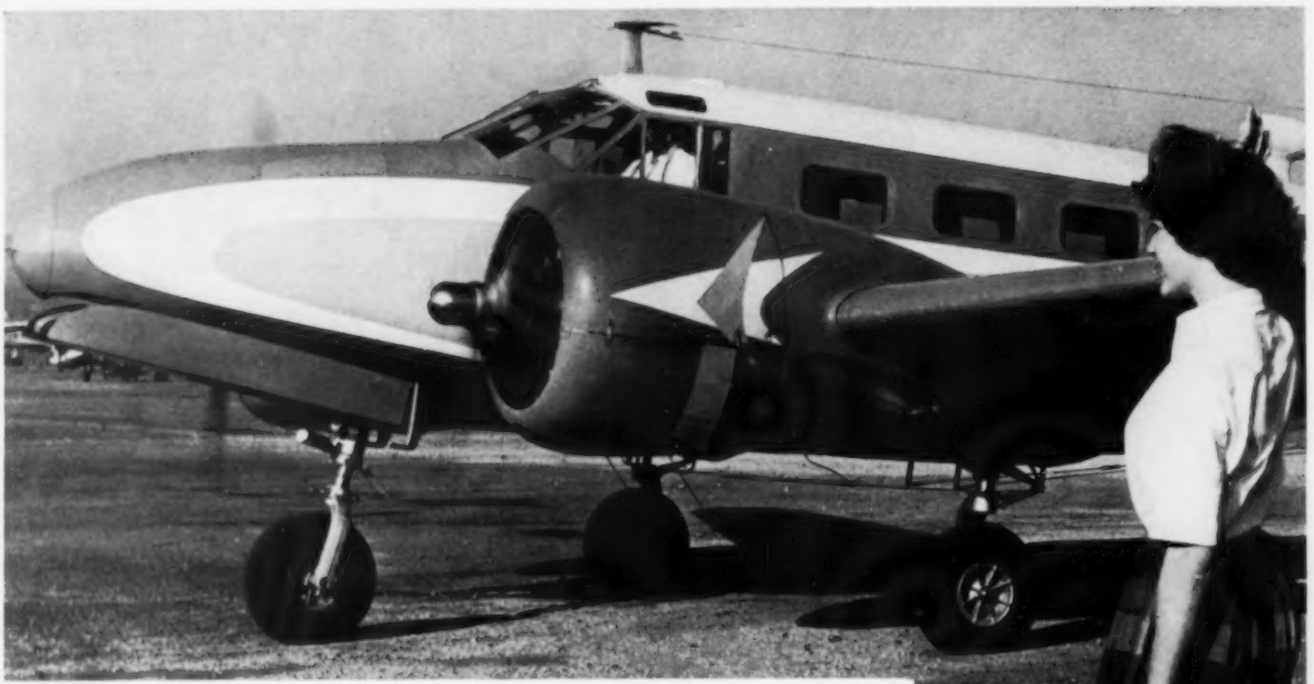
Distinctive with the Skyhook is the installation of the engine in the nose, ahead of the cabin. All other light utility rotary-wing craft locate the engine and transmission behind the cabin and directly beneath the rotor head. The Skyhook's transmission is located as in an auto — in the floor up front. From it, a vertical drive shaft extends between the two front seats and through the cabin roof to the main rotor, while a horizontal drive shaft extends rearward between the two rear seats to the tail rotor.

But there are some distinctive Cessna features in the Skyhook which are not so apparent to the eye as the engine-transmission-drive layout. In the drive system, for example, there are only 5 gears — less than half as many as conventionally used. The transmission itself is an automotive type, manufactured by a producer of transmissions for industrial machinery such as road graders. The Cessna rotor head is also distinctive and simplified.

(Continued on page 58)

Single-unit engine cowling slides forward and off, to be completely removed for easy access to engine compartment. Simplified rotor head is patented Cessna feature. —(Cessna Photo.)

VISIT: Riley's Ramp, Broward County



Tricycle Gear For Beech Twin

LATEST of many modernization kits for the classic Beech 18 Twin gives that venerable light transport a tricycle landing gear for easier handling. The modification moves the main landing gear 48 inches aft of the original position and adds a complete new and extended nose assembly, increasing fuselage length 28 inches. The cabin floor is 38 inches off the ground at the door and the airplane sits at a 5-degree nose-down angle. All three wheels are completely cowled, reducing drag and adding to cruising speed.

Frank Nixon of Volpar Aviation Inc., Pacoima, California, which perfected the modification, said kits will be available soon. Wings or wing skin need not be removed for the modification. Existing main gear essential components are utilized. Nixon said the tricycle gear permits slower approach speeds and improved braking, while also lowering the airplane's height to 110 inches to fit hangars with lower door clearance.

Modified Beech 18 with tricycle gear is pictured in static position (above) and in flight (below). All wheels retract forward in less than 8 seconds and all 10-ply tires are 8.50 by 10.

Paint jobs for 1961 distinguish 250-hp. Comanche (above) and 180-hp. Comanche (opposite page) with more powerful version wearing a "250" medallion on its nose. Comanche 250 cruises 181 mph., Comanche 180 cruises 160 mph.

—(Piper Photo by Tony Linck.)

Improved Piper Comanches For 1961

NEW 1961 Piper Comanches began going to dealers in October, featuring improvements expected to increase the worldwide popularity of the low-wing, four-place Comanches in four models with either 250-hp. or 180-hp. Lycoming engines. The Comanche design has become the world's biggest selling retractable-gear private airplane during the last two years.

Prices for the 1961 Comanches are up $456 to $1,026 from 1960 and are as follows:

	"180"	
Standard	$16,445 Up	$645
Custom	18,236 Up	856
Super Custom	19,256 Up	456
AutoFlite	20,056 Up	506
	"250"	
Standard	$20,485 Up	$ 685
Custom	22,276 Up	896
Super Custom	23,776 Up	976
AutoFlite	24,576 Up	1,026

The 250-hp. Comanche has a new and higher gross weight of 2,900 lbs., up 100 lbs. over the 1960 model, and provides a useful load of 1,270 lbs., which is 70 lbs. more than formerly. This useful load amounts to 43.8% of the gross weight. While standard fuel capacity is 60 gals., optional capacity of 90 gals. is available, increasing its fuel supply by 30 gals. over the former model. The 250 Comanche cruises 181 mph. using 75% hp. with fuel consumption of 14 gals. hourly. With 90-gal. supply, normal range of 1,100 miles can be stretched to 1,650 miles at 40% power and 137 mph., giving it a flight endurance of 12 hours. It stalls at 65, climbs 1,350 fmp., takes off in 1,000 ft. and lands in 650 ft.

The 180-hp. Comanche's gross weight of 2,550 lbs. is unchanged but its empty weight of 1,510 lbs. is up 35 lbs. from last year, giving it a useful load of 1,040 lbs. This useful load is 40% of its gross weight. Standard fuel capacity is 50 gals. with optional capacity of 60 gals. available. The 180 Comanche cruises 160 mph. on 75% hp. using 10 gals. per hour. With 60-gal. capacity, normal range of 900 miles can be stretched to 1,100 miles at 137 mph. in 8 hrs., using 55% hp. It stalls at 61, climbs 910 fpm., takes off in 750 ft. and lands in 600 ft.

Both the 250 and 180 Comanches are capable of identical low-power cruising efficiency with 18.3 miles per gallon of fuel at a speed of 137 mph. The factory says the 250's optimum cruise is 137 mph. using 40% of

Piper Comanche
Factory Data

	Model PA-24 "180"	Model PA-24 "250"
Std. Price	$16,445	$20,485
Lycoming Eng. Model	O-360-A	O-540-A1A5
Hp.-rpm.	180-2,700	250-2,575
Gr. Wt., lbs.	2,550	2,900
Empty Wt., lbs.	1,510	1,630
Useful Ld., lbs.	1,040	1,270
Useful Pct. of Gr. Wt., %	40	43.8
Fuel Capacity, gals.	50	60
Optional Fuel Cap., gals.	60	90
Stall Spd., flaps down, mph.	61	65
Top Speed, mph.	167	190
Cr. Spd., 75% hp., mph.	160	181
Fuel Cons., 75% hp., gph.	10	14

Cruising Range — Comanche 180	Miles	Gls.	Hrs.	Mph.
75% hp.-Sea Lvl.	900	60	6	150
Optimum Range	1,100	60	8	137
Comanche 250				
75% hp.-Sea Lvl.	1,100	90	6.4	172
Optimum Range	1,650	90	12.0	137
Best Rate of Climb Spd., fpm.	96			95
Rate of Climb, fpm.	910			1,350
Svc. Ceiling, ft.	18,500			20,000
Abs. Ceiling, ft.	21,000			22,000
Take-Off Run, ft.	750			1,000
Landing Roll, ft.	600			650
Bag. Cap., lbs.	200			200
Wing Loading, lbs. sq. ft.	14.3			16.3
Power Loading, lbs. hp.	14.2			11.6
Wing Area, sq. ft.	178			178
Span, ft.	36			36
Length, ft.	24.7			24.9
Height, ft.	7.3			7.3

Comanche 180 is all-white for 1961 with color striping. Lycoming engines power both Comanches, the 250 version having a 6-cylinder O-540-A1A5 rated at 250 hp. at 2,575 rpm., while the 180 has a 4-cylinder O-360-A rated at 180 hp. at 2,700 rpm. Useful loads are 1,270 lbs. for the 250 and 1,040 lbs. for the 180. —(Piper Photo by Tony Linck.)

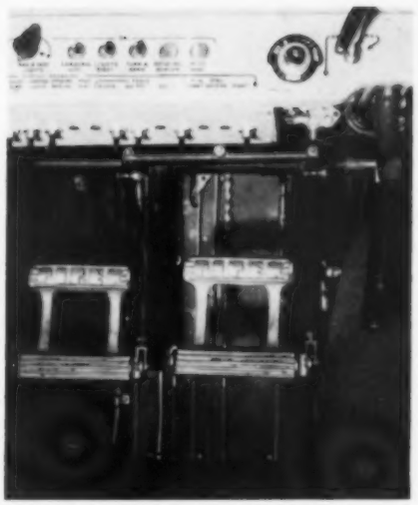
power, at which the 250-hp. Lycoming consumes 7.5 gals. hourly, while the 180 cruises 137 mph. using 55% of power, at which the 180-hp. Lycoming consumes 7.5 gals. hourly. Actual power used is approximately 100 hp. for both conditions.

New to both 250-hp. and 180-hp. models of the Comanche are a more efficiently-arranged instrument panel which mounts radios at center, separating flight instruments on the left and engine instruments on the right. New toe brakes are provided on the rudder pedals as standard. They supplement a hand braking system.

New optional equipment includes an advanced "AltiMatic Pilot" which is a three-directional, all-transistorized automatic flight system including pitch control, course selector, heading lock, altitude pre-select scale and altitude hold. The unit makes it possible for the pilot to pre-set his compass course as well as his approximate cruising altitude before take-off. Once airborne and with the AltiMatic Pilot turned on, the Comanche will automatically turn to the prescribed heading and will climb to the pre-set altitude. Subsequent course or altitude change can be made merely by resetting course or altitude selectors. Pitch control permits setting any desired rate of climb or descent. The AltiMatic Pilot adds $1,245 to the price of the AutoFlite Comanche. AutoFlite models feature Piper's two-axis AutoControl as standard. It makes turns automatically and holds course precisely with a gyro-controlled heading lock. AutoControl has proved so popu-

New instrument panel for 1961 Comanches has radio section at center, flight group at left and engine group at right. Photo shows a representative radio package including, from top to bottom, new Piper AutoNav direction finder, Narco Mark V with CS-3 VOR-ILS indicator, Narco Mark VI crystal-controlled VOR receiver and new Piper AltiMatic Pilot. Second Narco Mark V for communications is at lower left behind wheel, completes "2½ system" for dual omni and communications. Lower right panel includes a radio master switch arrangement and new cabin air temperature control console at extreme right.

—(Piper Photo by Tony Linck.)



New toe brakes on rudder pedals supplement hand-brake lever on 1961 Comanches.

lar that over 70% of Comanche production has included this automatic flight feature. Now Piper's AltiMatic Pilot, as an optional replacement for the AutoControl, provides a more sophisticated automatic system for greater flight efficiency than ever.

Also completely new for 1961 Comanches is Piper's AutoNav radio direction finder. It automatically homes in to any standard broadcast or low-frequency radio range. When tuned to a station, the AutoNav's left-right needle indicates which direction to turn to head for the station. AutoNav is offered as standard equipment in all Custom, Super Custom and AutoFlite models, and is available for installation in all single-engine Piper models in the field.

A new feature of the 1961 Comanche instrument panel is a control

(Continued on page 63)

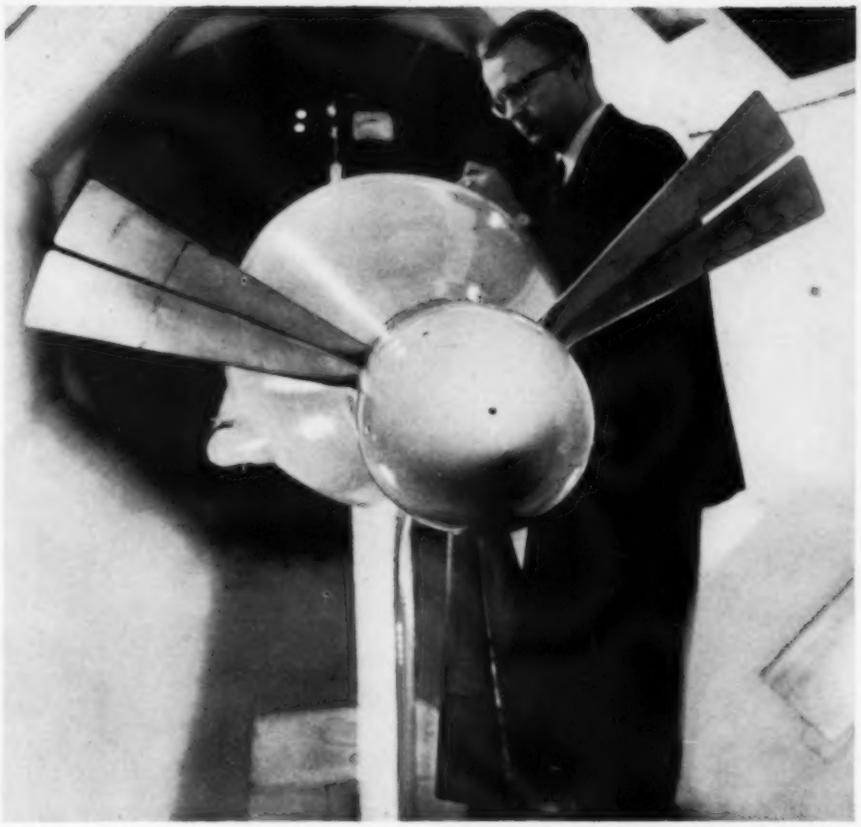
Individual front seats in Comanche are reclining and have head rests (top photo). Photo at left shows all-moving stabilator and swept tail of the Comanche—stabilator has anti-servo tab for longitudinal stability and good control at slow speeds and has 25% less area than conventional fixed stabilizer and elevator. Photo below shows Comanche 180 and Comanche 250 in formation take-off.

—(Piper Photos by Tony Linck.)

Variable Camber Propeller

A VARIABLE camber propeller is being developed by Hamilton Standard Division of United Aircraft Corporation under a U. S. Navy contract and it will make it possible to automatically adjust the lift of propeller blades to the most efficient level for any flight condition, thus avoiding the compromise of efficiency between the requirements for take-off and climb versus cruising operations embodied in the design of all propellers used today.

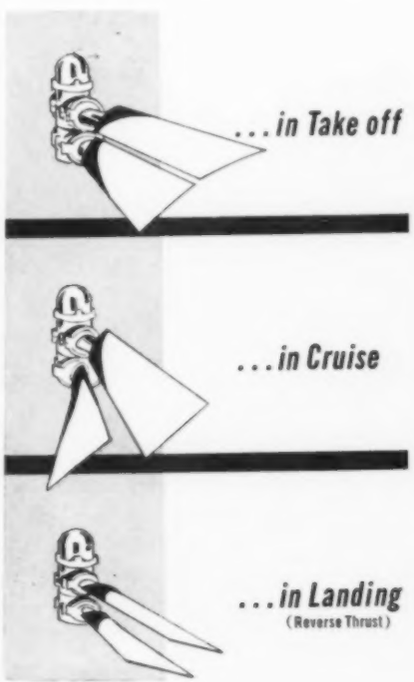
Increases of up to 30% in the range of transports and gains of as much as 50 knots in the speed of low-level attack planes are expected of the new propeller. Invented by George Rosen, chief of analysis at Hamilton Standard, the new propeller uses six or eight blades mounted in sets of two on a common hub. The rear blades are staggered behind the front ones. Each pair of front and rear blades creates a single airfoil in the manner of an airplane's wing with its flap extended. Since the two blades are in effect one surface, changes of angle vary the over-all camber of the blades, just as a wing's curvature changes when the flaps are extended or retracted. The result is the same, too—lift is increased or decreased as desired. A propeller blade is essentially a rotating wing and, as in a wing, the lift is determined in large part by the camber or curvature of the surface.



Wind tunnel tests of scale model showed variable-camber propeller offers 35% take-off thrust improvement with no loss in cruise efficiency.

In operation, the forward blade assumes a low blade angle for take-off and climb. With increases in flight speed, the forward blade approaches angular alignment with the rear blade, reducing the effective camber of the combination and avoiding the loss of cruise efficiency imposed by high cambered airfoils. All camber settings will be controlled by constant speed governing. Both blades change pitch differentially for take-off, flight and landing.

The propeller will be applicable to a wide range of high-performance turboprop airplanes and can be a major factor in assuring development of new aircraft types, including short and vertical take-off and landing (STOL-VTOL) aircraft.



Sketch at left shows angle changes for tandem blades. Below is George Rosen of Hamilton Standard, inventor of variable-camber propeller, and model.

Two propjet Grumman Gulfstream demonstrators featured custom equipment.

With feathered prop, Martin 404 climbs out on standby rocket thrust.

L. B. Smith Aircraft's new pressurized-cabin Tempo II attracted interest.

Super 26 by Lockheed Aircraft Service offers pressurized cabin.

Show For Business Aircraft

THE largest display of business flying equipment ever assembled in one spot produced a colorful backdrop last month for the 13th annual meeting of the National Business Aircraft Association in Los Angeles.

Some 800 registrants and over 1,000 people, mostly from industry, gathered to talk shop and look over the wares of business aviation entrepreneurs, some new and some old. While the industry representatives and salesmen outnumbered the prospects and customers more than 10 to 1, the affair was worthwhile from many standpoints and only the companies who paid the bills can say whether or not it was worth the expense involved. The static displays of equipment and the fly-by of airplanes on the last day of the meeting undeniably offered a very creditable showcase from an industry standpoint. But the paucity of customers drove home the point that users of corporate type business air-

Miss Business Aviation was pretty 18-year-old Carole Furth, a secretary of Pacific Airmotive Corp., one of the West Coast firms which entered contestants for the title.

—(Photos by Richard Hrabetin of Garrett Corp., except Lockheed Super 26 Photo by Gordon Ayers.)

planes are too busy to attend meetings and air shows — they still depend upon work-a-day salesmen and the good old-fashioned written word, mainly in the trade journals, to keep up with technical advances being made in this dynamic field of air transportation.

Even if you had been to similar gatherings in recent months there were many items on display for the first time. For example, Aero Commander's spanking new 680-F model, with which Miss Jerrie Cobb established a new world's altitude record of 37,010 for Class C-1.d aircraft on the opening day of the meeting, was available for inspection with the company's entire sales staff and Chief Engineer Ted Smith on deck to answer questions. Lockheed Aircraft Service unveiled their Super 26 conversion of the B-26 and Saturn Aircraft of Oxnard, California, showed the prototype five-place, low-wing light twin whose original engineering was incubated in the old Monocoupe Corporation, now defunct. For many viewers it was the first time to have a close-up view of such designs as North American's Sabreliner jet transport, the L. B. Smith B-26 Tempo II, Oakland Air-motive's Super V Bonanza conversion, the new 4-place Lake Aircraft pusher amphibian, Bill Conrad's and Volpar's twin Beech conversions and both the 250 and 500 Howard Supers.

A plushed up executive model of Vickers' Viscount came down from Canada and Lockheed of Marietta, Ga., proudly showed their Jetstar, which is well on its way to approved type certification. The industry's most sumptuous turboprops were much in evidence including Fairchild's F-27, Grumman's Gulfstream and the Convair 540. Although it was hardly the place for lightplanes in all this array of speed and power, the major lightplane suppliers were there with the airplanes that are selling in quantity—Beech, Cessna, Piper and Aero Commander, with one Bellanca, a Mooney, a Forney Navion and a Pacair Nomad.

Three helicopter companies, apparently sensing a potential market among corporate users, displayed their latest commercial offerings—Bell, Hiller and Hughes.

While one cynical observer claimed that the show was mainly "a museum of converted surplus" the fact remains that relatively few corporations are planking down a million dollars for an

North American Aviation's twin-jet Sabreliner utility transport.

New Beech Queen Air was among many aircraft shown by lightplane builders.

Corporation pilots gathered at NBAA meeting to receive organization's annual "million-miler" safety certificates.

—(Photos by Richard Hrabetin of Garrett Corp.)

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Put this RCA Weather Eye on Your Aircraft

...and "see" the weather miles ahead!

It's the RCA AVQ-50 Weather Radar, specially designed for use in aircraft where weight, space and power are at a premium.

In thousands of installations, the AVQ-50 has cut operating costs of business and executive aircraft, improved on-time arrival and increased passenger comfort. By "seeing" the weather far ahead, your pilot can go around or between turbulent areas and often avoid long and costly detours, greatly increasing the effectiveness and economy of your aircraft.

Because it contributes to safety, as well as improved scheduling and flying comfort, weather radar has been designated as required equipment for most commercial airlines. By making the AVQ-50 lighter, smaller and less costly RCA makes it available to most executive and business aircraft.

For complete information, get in touch with the nearest Authorized RCA Dealer listed on the opposite page, or address: Radio Corporation of America, Aviation Division, 11819 W. Olympic Blvd., Los Angeles 64, California.

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Atlantic Aviation Corp.
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Butler Aviation, Inc.
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Qualitron, Inc.
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Reading Aviation Service, Inc.
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Remmert-Werner, Inc.
St. Louis, Missouri

Robbins Aviation Corp.
Pontiac, Michigan

Roscoe Turner Aeronautical Corp.
Indianapolis 21, Indiana

San Jose Avionics Co.
San Jose, California

Smith-Meeker Eng. Co.
New York 7, N. Y.

Southern Airways Company
Atlanta, Georgia

RCA®

Oakland Airmotive Super V conversion was exhibited.

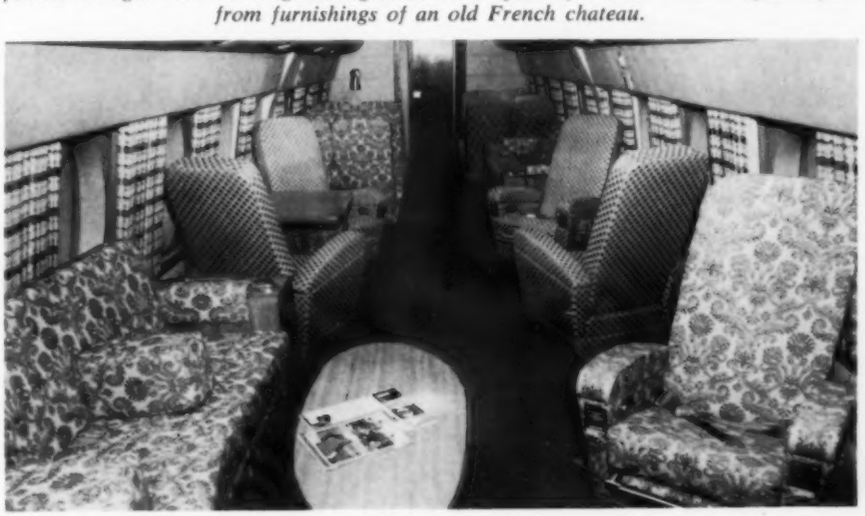
airplane and so long as the conversion geniuses can provide such attributes as pressurization, speed and reliability at half the original cost or thereabouts of the new ones, the conversions will remain a factor in the corporate market for some years to come.

We think it is newsworthy that Lockheed Aircraft Service made the decision to enter the B-26 conversion field, joining L. B. Smith, On Mark Engineering and Rock Island Oil. The LAS Super 26 features a completely new, larger and pressurized and air-conditioned cabin with "walk-erect" headroom. The former rear wing spar, which isolated a major portion of the main cabin area, has been completely removed and replaced with Lockheed's original steel ring to eliminate one of the biggest drawbacks to the famous B-26 as a conversion. A new fiberglass nose provides space for electronic equipment and baggage and the airstair door is operated electrically or mechanically. Modification costs run from $355,000 to $600,000 depending upon customer's choice of engines, props, electronic gear, brakes and other components. If the customer prefers to retain instrumentation, electronics and 2,000-hp. engines on his present airplane, he gets the standard modification. With new CB-17 engines the Super 26 should provide cruising in the 400-mph. spectrum above 20,000 feet. Just before the air show ended on September 22, the announcer broke the news that the Super had received its supplemental type certificate. The first unit will go to Mesta Machine Company of Pittsburgh and new orders will be delivered with six to nine months from purchase contract.

A sorely-needed brand new lightplane company is in the making at Saturn Aircraft, who displayed the 5-place light twin mounting two 180-hp. Lycomings. Saturn officials, led by President L. W. Hubert, are certainly talking up a storm and if adequately financed they might make it despite the fact that lightplane manufacture on the West Coast has a sad, sorry history, splattered with failure. In their twin, Saturn is shooting for 200-mph. cruise at 10,000 feet and

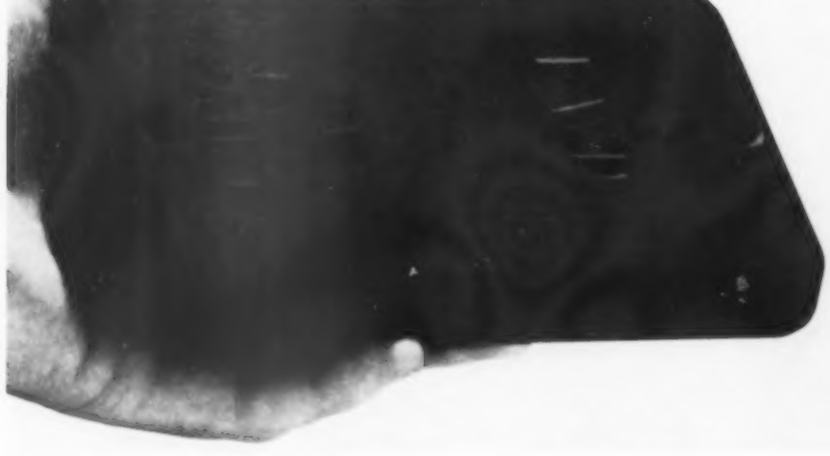
(Continued on page 60)

Considered by many as most beautiful corporate aircraft interior was this cabin of a private Vickers Viscount. The 22-seat, 4-propjet Viscount was customized for Mrs. Herbert A. May of Washington, D. C., by AiResearch Aviation Service. Upholstery fabrics in light blue on beige background were specially woven with designs copied from furnishings of an old French chateau.



Narco's New Low-Cost ADF

NATIONAL Aeronautical Corporation has introduced its new $895 transistorized, 8-lb., single-unit ADF-29, which draws less than 1 amp for 14 or 28-volt systems and fits a panel cutout only 2-7/8 ins. high and 6-5/16 ins. wide. Face of unit (see photo above) has direction indicator and volume knob at left and frequency dial and tuning knob at right. Between them are band switch for range and broadcast at top and function switch (bottom). Two-band receiver covers 200-550 kc. and 550-1,600 kc. Patented Narcomatic sensor antenna (shown with Nancy Narco above), sealed in plastic and extending only 2.5 ins. from aircraft skin, uses 3 fixed antennas each 120 degs. to the other. It uses strongest rather than weakest signal, without hunting or null-seeking and making it less affected by thunderstorms or other static.



New Motorola Radio Compass

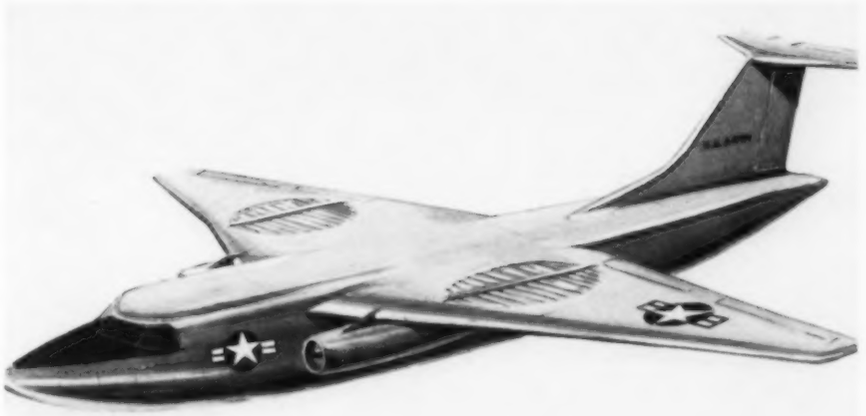
A NEW transistorized ADF-T-12 radio compass, miniaturized for reduction of 60% in weight and 70% in size, is being marketed by Motorola Aviation Electronics, Inc. (formerly LearCal division of Lear, Inc.). Priced at $995 complete, the ADF-T-12 is for either 14 or 28-volt systems. Its receiver weighs 5 lbs., indicator-amplifier 3.2 lbs. and fixed-loop antenna 1.3 lbs., for total of 9.5 lbs. It uses a maximum of 0.75 amp for receiver and 1.2 amp for ADF systems, these inputs representing an 80% power reduction. Face of the receiver unit (photo at left) has volume knob and function switch at left, frequency dial and tuner at center and test button and frequency selector switch at right. Three-band receiver covers 190-440 kc, 420-900 kc and 850-1,750 kc. Its fixed-loop antenna (left) is world's smallest ADF finder loop, featuring 7.5-degree automatic quadrantal error correction and requiring no electrical or mechanical quadrantal error compensators.

Lift Fan For VTOL Craft

A NEW "lift fan" propulsion system under General Electric Company development for the U. S. Army promises new types of vertical take-off and landing aircraft featuring high-speed cruising advantages of conventional jet planes.

The new system has three basic components—a jet engine, a diverter valve and a 76-inch-diameter tip-driven lift fan. For VTOL operations, the diverter valve directs the jet engine's hot gases to the lift fan's tip-mounted turbine blades, which cause the fan to rotate at high speed to produce vertical thrust. In the air, the pitch of louvers under the fan would be changed to deflect the fan exhaust rearward, thus producing forward acceleration. With lift transferred from the fan to the wing at sufficient forward speed, the diverter valve would be re-positioned to allow straight-through exhaust of the jet engine gases and the fan louvers would be closed.

In General Electric tests, a J85 jet engine of 2,500 lbs. of thrust is used and its lift fan boosts this thrust for vertical flight to 7,500 lbs. GE says present technology gives the lift fan a thrust-to-weight ratio in excess of 9 to 1 but developments are already under way which are expected to increase the thrust-to-weight ratio to 15 to 1 by 1965. GE studies describe future applications including (1) a medium-size ground support transport serving forward combat areas with arms and supplies or for airlifting troops into strategic locations for assault; (2) an Army observation-surveillance aircraft capable of penetrating enemy territory at high speed yet hover for visual or photo reconnaissance, and (3) by 1970, a commercial transport for city center passenger service over short to medium distances.



Artist's sketches indicate how General Electric lift fan VTOL propulsion system might be adapted for an observation aircraft (top) and a light or medium transport carrying four tons of troops or supplies into confined areas.

"The basic simplicity and versatility of the tip-turbine-driven lift fan, needing neither gears, shafts nor extra fuel lines and controls, promises extremely reliable service," said A. P. Adamson, manager of GE's VTOL project. He said tests, first using hot gas and later a J85 engine, demonstrated the mechanical soundness of the system before the lift fan was fuselage-mounted in a full-size mock-up of a VTOL airframe and tested in a 40 by 80-ft. NASA wind tunnel at Moffett Field, California.

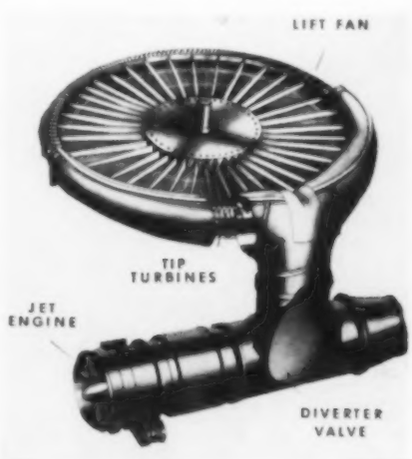


Photo at left shows lift fan system, with tip-driven fan pictured above and scroll with diverter valve at right. Lift fan's installation in fuselage or wing has adjustable venetian-blind louvers for deflecting thrust from fan.

Coming Your Way....the
N7100P

the NEW 1961 Comanches

New features everywhere, new improvements, new comfort, new flight ease make the new 1961 Comanches—180 and 250 hp—more surely than ever the best all-around aircraft in their class. You'll understand why, when you see what Piper engineering has done to improve even further this fine design that has already proved its superior performance by world-record-breaking long distance flights...and its superior popularity by consistently being the largest-selling retractable-geared airplane in the world.

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Gross load increased by 100 pounds in 250 horsepower Comanche.

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New high volume air inlet system, new air exhaust, new 4-way air control console, new high capacity heating system gives perfect cabin temperature control year-round.

NEW **ALTI MATIC PILOT**
New exclusive Piper Alti Matic Pilot (optional) is a full three-directional automatic pilot complete with course and altitude selectors. Climbs, descends, holds course, changes course, holds altitude *automatically*.

NEW **PIPER AUTO NAV**
Sensational new, simplified automatic radio direction finder lets you home in to any low frequency or commercial broadcast station. Standard equipment on Custom, Super Custom and AutoFlite models.

NEW **BEAUTY**
New distinctive styling makes either the 180 or 250 hp Comanche more than ever the attention-getter on any flight line. Stunning new cabin styling is second to none in beauty and attractiveness.

PLUS These Superior Comanche FEATURES: Widest, roomiest, most spacious cabin...biggest baggage compartment...largest useful load ...simplest maintenance... dependable, economical Lycoming power.

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To earn the coveted designation, service organizations must meet rigid requirements, must be properly equipped and staffed by personnel who have attended the intensive service school conducted at the Piper plant.
Dozens of Piper Factory-Certified Service Centers have been established throughout the nation and around the world, and more are being designated to assure convenient and competent Piper service wherever you may wish to fly.

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BROWNING AERIAL SERVICE
Municipal Airport
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HOmestead 5-1728
Austin, Texas

CATLIN AVIATION CO.
Will Rogers Field
P. O. Box 2398
MUtual 5-6644
Oklahoma City, Oklahoma

CUMMINGS & GROVES AVIATION, INC.
Houston International Airport, Hangar No. 8
MIssion 4-5593 *and OLive* 4-4351
Houston, Texas

DELAWARE AVIATION CORPORATION
North Philadelphia Airport
HObart 4-1600, *TWX PH* 520
Philadelphia 36, Pennsylvania

DES MOINES FLYING SERVICE, INC.
Howard Gregory, President
Municipal Airport
ATlantic 8-2218
Des Moines, Iowa

EXECUTIVE AIRMOTIVE, INCORPORATED
Stewart Air Park
P. O. Box 70
GArfield 8-3581, *GArfield* 2-7277
Parkersburg, West Virginia

J & J AIRCRAFT, INC.
Sarasota-Bradenton Airport
821 *General Arnold Road*
ELgin 5-6868
Sarasota, Florida

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Ken-Mar Airpark
Box 2667, *University Station*
MUrray 3-6589
Wichita, Kansas

RED AIRCRAFT SERVICE, INC.
Broward County International Airport, Building 78
JAckson 3-9624
Fort Lauderdale, Florida

ROSS AVIATION, INC.
Riverside Airport
HIckory 6-6654
Tulsa, Oklahoma

WEB THOMAS AIRCRAFT, INC.
Highland Park and Addison Airports
ADams 9-2687
Dallas, Texas

Where Are The Active Airplanes?

By E. H. PICKERING

GENERAL aviation aircraft registrations have decreased in the northeastern quadrant of the U.S., and have gained in each of the other three quadrants. Considering the "northeast" as the area east of the Mississippi River and north of the Ohio River and the Mason-Dixon Line, then the 14 states in the "northeast" lost 320 aircraft registrations while the 36 remaining states and the District of Columbia gained 1,208 registered active general aviation aircraft between January 1, 1959 and January 1, 1960. These figures were disclosed by a special FLIGHT MAGAZINE analysis of data recently released by the FAA in its annual publication, "U.S. Active Civil Aircraft by State and County."

General aviation aircraft include all U.S. registered civil aircraft minus those operated by scheduled and supplemental air carriers. In the year ending January 1st of this year, active general aviation aircraft registrations had increased 1.3% (888 aircraft) over the previous year. This compares with a 5.0% growth during the preceding year. The change in number of registrations reflects new production aircraft delivered in 1959, less attrition of older aircraft.

Statistics previously compiled by FLIGHT and published in the March, 1960, issue show that 1959 production of general aviation aircraft totaled 7,689 units. Although this figure includes exported aircraft, it does not include helicopters or large executive aircraft (Gulfstreams, Friendships, converted Venturas and B-26's, etc.). The absorption of this body of newly produced aircraft is only slightly indicated by figures showing an increase in multi-engine registrations of 618 units (amounting to an 11.4% growth in a year) and an increase in single-engine aircraft of 4-place or more of 1,131 units (amounting to a 4.3% growth in a year.)

A net increase of only 888 active

Plus marks show gains and minus marks show losses in active general aviation aircraft registrations by states as of Jan. 1, 1960. Double plus marks and double minus marks show gains or losses of 50 or more aircraft per state. Wisconsin's single minus mark should be shown as a double minus mark. Table below details state registrations.

—(FLIGHT MAGAZINE Map.)

GENERAL AVIATION TRENDS IN INDIVIDUAL STATES

(FLIGHT MAGAZINE compilation from FAA Data)

State	General Aviation Aircraft Registered									Public Use Airports		
	Multi-engine			Single-engine 4-Place or More			Total Active					
	1959	1960	Change	1959	1960	Change	1959	1960	Change	1959	1960	Change
Alabama	52	57	5	232	247	15	626	668	42	33	34	1
Alaska	64	71	7	420	416	— 4	1,123	1,158	35	159	131	—28
Arizona	61	83	22	339	431	92	908	1,065	157	48	48	
Arkansas	34	45	11	256	264	8	826	859	33	42	48	6
California	583	681	98	3,291	3,428	137	8,454	8,641	187	200	198	— 2
Colorado	72	70	— 2	391	431	40	984	987	3	42	39	— 3
Connecticut	43	44	1	189	186	— 3	522	536	14	21	20	— 1
Delaware	37	35	— 2	77	86	9	214	221	7	10	11	1
Dist. of Columbia	92	126	34	72	69	— 3	277	303	26	1	1	
Florida	229	268	39	771	826	55	2,134	2,232	98	93	97	4
Georgia	50	65	15	315	344	29	833	877	44	45	48	3
Hawaii	10	10		11	12	1	90	87	— 3	16	14	— 2
Idaho	27	25	— 2	281	306	25	664	689	25	31	28	— 3
Illinois	298	331	33	1,651	1,716	65	3,592	3,584	— 8	105	104	— 1
Indiana	131	145	14	886	876	—10	1,983	1,875	—108	100	97	— 3
Iowa	51	65	14	719	771	52	1,638	1,626	— 12	72	72	
Kansas	112	96	—16	904	866	—38	1,923	1,799	—133	88	81	— 7
Kentucky	38	44	6	260	272	12	530	529	— 1	21	22	1
Louisiana	119	138	19	360	362	2	1,099	1,159	60	40	35	— 5
Maine	6	8	2	114	134	20	324	371	47	27	35	8
Maryland	47	43	— 4	224	233	9	625	624	— 1	28	29	1
Massachusetts	68	72	4	302	312	10	870	878	8	48	53	5
Michigan	229	249	20	1,145	1,132	—13	2,829	2,715	—114	116	124	8
Minnesota	109	97	—12	649	690	41	1,923	1,950	27	77	89	12
Mississippi	24	37	13	159	177	18	654	718	64	39	38	— 1
Missouri	99	108	9	620	661	41	1,441	1,461	20	60	63	3
Montana	39	44	5	372	385	13	973	984	11	47	44	— 3
Nebraska	53	66	13	435	447	12	1,177	1,174	— 3	58	56	— 2
Nevada	34	45	11	110	124	14	299	333	34	20	19	— 1
New Hampshire	9	11	2	55	53	— 2	181	176	— 5	17	16	— 1
New Jersey	118	131	13	485	481	— 4	1,282	1,259	— 23	55	55	
New Mexico	53	58	5	361	374	13	719	726	7	32	31	— 1
New York	357	364	7	890	927	37	2,688	2,727	39	97	111	14
North Carolina	72	95	23	417	444	27	1,142	1,149	7	59	59	
North Dakota	7	7		143	169	26	623	675	52	31	33	2
Ohio	313	364	51	1,232	1,257	25	3,076	3,108	32	135	138	3
Oklahoma	191	188	— 3	563	615	52	1,437	1,511	74	51	61	10
Oregon	101	117	16	546	605	59	1,336	1,391	55	39	40	1
Pennsylvania	250	271	21	940	980	40	2,498	2,494	— 4	137	135	— 2
Rhode Island	11	15	4	52	44	— 8	145	130	— 15	6	6	
South Carolina	19	23	4	147	164	17	383	408	25	32	30	— 2
South Dakota	6	9	3	244	261	17	757	779	22	36	36	
Tennessee	65	85	20	301	345	44	749	800	51	36	39	3
Texas	710	796	86	2,304	2,400	96	5,810	6,051	241	207	209	2
Utah	20	23	3	187	193	6	442	442		27	25	— 2
Vermont	5	7	2	31	26	— 5	109	97	— 12	10	8	— 2
Virginia	67	60	— 7	294	285	— 9	855	802	— 53	45	45	
Washington	57	56	— 1	597	635	38	1,733	1,703	— 30	55	57	2
West Virginia	23	27	4	138	154	16	364	368	4	20	20	
Wisconsin	116	120	4	495	479	—16	1,494	1,323	—171	74	83	9
Wyoming	26	26		158	164	6	400	401	1	25	23	— 2
Puerto Rico	8	9	1	20	27	7	52	59	7	7	7	
Virgin Islands		2	2	1		— 1	2	2		2	2	
Other Countries	1	2	1	14	15	1	27	52	25			
Totals	5,416	6,034	618	26,170	27,301	1,131	67,839	68,727	888	2,922	2,947	25

ACTIVE CIVIL AIRCRAFT BY STATES

Ranked in Order of General Aviation Aircraft Registrations as of January 1, 1960

State	General Aviation Aircraft				Airports	
			Single-Engine			
	Total	Multi-Engine	4 Place or more	Other	General Use	Total
1. California	8,641	681	3,428	4,532	198	394
2. Texas	6,051	796	2,400	2,855	209	505
3. Illinois	3,584	331	1,716	1,537	104	270
4. Ohio	3,108	364	1,257	1,487	138	262
5. New York	2,727	364	927	1,436	111	224
6. Michigan	2,715	249	1,132	1,334	124	197
7. Pennsylvania	2,494	271	980	1,243	134	261
8. Florida	2,232	268	826	1,138	97	153
9. Minnesota	1,950	97	690	1,163	89	210
10. Indiana	1,875	145	876	854	97	133
11. Kansas	1,790	96	866	828	81	185
12. Washington	1,703	56	635	1,012	57	115
13. Iowa	1,626	65	771	790	72	169
14. Oklahoma	1,511	188	615	708	61	125
15. Missouri	1,461	108	661	692	63	128
16. Oregon	1,391	117	605	669	40	135
17. Wisconsin	1,323	120	479	724	83	161
18. New Jersey	1,259	131	481	647	55	88
19. Nebraska	1,174	66	447	661	56	168
20. Louisiana	1,159	138	362	659	35	82
21. Alaska	1,158	71	416	671	131	344
22. North Carolina	1,149	95	444	610	59	105
23. Arizona	1,065	83	431	551	48	111
24. Colorado	987	70	431	486	39	83
25. Montana	984	44	385	555	44	142
26. Massachusetts	878	72	312	494	53	80
27. Georgia	877	65	344	468	48	107
28. Arkansas	859	45	264	550	48	86
29. Virginia	802	60	285	457	45	87
30. Tennessee	800	85	345	370	39	54
31. South Dakota	779	9	261	509	36	69
32. New Mexico	726	58	374	294	31	83
33. Mississippi	718	37	177	504	38	76
34. Idaho	689	25	306	358	28	152
35. North Dakota	675	7	169	499	33	155
36. Alabama	668	57	247	364	34	77
37. Maryland	624	43	233	348	29	44
38. Connecticut	536	44	186	306	20	30
39. Kentucky	529	44	272	213	22	32
40. Utah	442	23	193	226	25	57
41. South Carolina	408	23	164	221	30	69
42. Wyoming	401	26	164	211	23	55
43. Maine	371	8	134	229	35	83
44. West Virginia	368	27	154	187	20	44
45. Nevada	333	45	124	164	19	50
46. Dist. of Columbia	303	126	69	108	1	1
47. Delaware	221	35	86	100	11	18
48. New Hampshire	176	11	53	112	16	24
49. Rhode Island	130	15	44	71	6	10
50. Vermont	97	7	26	64	8	24
51. Hawaii	87	10	12	65	14	41
	68,614	6,021	27,259	35,334	2,938	6,413
52. Puerto Rico	59	9	27	23	7	9
53. Foreign Countries	52	2	15	35	—	—
54. Virgin Islands	2	2	—	—	2	2
	68,727	6,034	27,301	35,392	2,947	6,424

Active General Aviation Aircraft By Counties

Counties with 40 or more aircraft ranked in order as of January 1, 1960

Rank	County	City	Total	Multi-Engine	Single Engine 4-Place or More	Other	AIRPORTS General Use	AIRPORTS Total
ALABAMA			**668**	**57**	**247**	**364**	**34**	**77**
1	Jefferson	Birmingham	131	21	60	50	3	3
2	Montgomery	Montgomery	53	8	22	23	2	3
3	Madison	Huntsville	49	4	16	29	1	1
4	Mobile	Mobile	42	5	14	23	3	3
5	Tuscaloosa	Tuscaloosa	42	2	21	19	1	1
6	Houston	Dothan	40	—	9	31	1	1
ARIZONA			**1,065**	**83**	**431**	**551**	**48**	**111**
1	Maricopa	Phoenix	573	48	214	311	16	23
2	Pima	Tucson	168	13	83	72	6	12
3	Pinal	———	87	3	26	58	5	14
4	Yuma	Yuma	65	9	25	31	3	9
5	Cochise	Douglas	44	2	17	25	5	11
5	Coconino	Flagstaff	40	1	20	19	5	12
ARKANSAS			**859**	**45**	**264**	**550**	**48**	**86**
1	Pulaski	Little Rock	157	19	68	70	2	4
2	Arkansas	Stuttgart	73	—	10	63	3	4
3	Phillips	Helena	54	1	4	49	1	1
4	Jefferson	Pine Bluff	51	1	11	39	1	5
CALIFORNIA			**8,641**	**681**	**3,428**	**4,532**	**198**	**394**
1	Los Angeles	Los Angeles	2,553	312	1,006	1,235	16	22
2	San Diego	San Diego	485	30	208	247	13	27
3	Orange	Santa Ana	366	36	150	180	4	4
4	Alameda	Oakland	363	24	155	184	4	5
5	Kern	Bakersfield	318	11	112	195	7	26
6	Fresno	Fresno	309	14	131	164	6	10
7	Sacramento	Sacramento	295	15	123	157	7	11
7	Santa Clara	San Jose	295	22	115	158	3	4
9	San Bernardino	San Bernardino	269	16	115	138	18	36
10	San Francisco	San Francisco	251	43	92	116	—	—
11	Riverside	Riverside	187	10	61	116	10	18
12	Contra Costa	Richmond	170	8	69	93	2	2
13	Humboldt	Eureka	158	7	84	67	5	9
14	San Mateo	Palo Alto	153	10	74	69	3	3
14	Tulare	Visalia	153	5	51	97	7	11
16	Stanislaus	Modesto	147	9	74	64	3	4
17	San Joaquin	Stockton	146	4	57	85	6	7
17	Ventura	Ventura	146	9	43	94	5	9
19	Imperial	El Centro	142	8	52	82	5	9
20	Merced	Merced	134	4	33	97	2	4
21	Santa Barbara	Santa Barbara	120	17	48	55	5	11
22	Yolo	Woodland	103	2	31	70	3	7
23	Monterey	Monterey	102	5	30	67	3	6
24	Sonoma	Santa Rosa	100	4	38	58	2	7
25	Kings	Hanford	82	6	26	50	2	8
26	Mendocino	Ukiah	80	5	42	33	3	6
27	Butte	Chico	78	1	28	49	3	6
28	Colusa	Colusa	65	2	14	49	2	6
29	Glenn	Willows	63	2	20	41	1	7
30	Marin	San Rafael	61	3	20	38	2	2
30	Shasta	Redding	61	5	35	21	5	5
30	Solano	Vallejo	61	4	27	30	2	5
33	San Luis Obispo	San Luis Obispo	58	2	30	26	3	6
34	Siskiyou	Yreka	48	4	17	27	4	10
34	Sutter	Yuba City	48	2	10	36	4	8
36	Napa	Napa	45	1	20	24	2	4
37	Santa Cruz	Santa Cruz	40	4	15	21	2	4
COLORADO			**987**	**70**	**431**	**486**	**39**	**83**
1	Denver	Denver	319	46	144	129	1	1
2	El Paso	Colorado Springs	61	6	22	33	2	3
3	Weld	Greeley	59	—	13	46	1	2

(Continued on page 44)

general aviation aircraft in the face of an annual production figure of nearly 8,000 emphasizes the fact that many older aircraft are no longer 'active.' The FAA describes 'active' aircraft as those holding valid airworthiness certificates with a periodic approved inspection within the past 12 months.

In general aviation aircraft, 17 states showed decreases in total active registrations. One state (Utah) had no change, and the remaining 32 states all showed gains ranging from a one registration increase (Wyoming) to 241 (Texas). Greatest loss was Wisconsin's 171 drop.

Only nine states showed decreases in multi-engine general aviation aircraft. Three states maintained their same number of registrations. The remaining 38 states all showed increases, led by California with 98 and Texas with 86.

In the category of single-engine aircraft of 4-place or more, 12 states showed decreases of minor amounts. Thirty-eight states showed increases in these registrations, again led by California with 137.

The three leading states (California, Texas, and Illinois), combined, account for over 25% of all active general aviation aircraft. Over 52% of the active aircraft are registered in the 10 leading states.

Out of the 3,070 counties in the 48 states (Alaska and Hawaii do not have counties) 2,711 are listed as having registered active aircraft. However, only 561 counties have 25 or more general aviation aircraft, only 265 have over 50 aircraft, and only 70 counties have over 150 aircraft registrations. The 36 leading counties account for over 25% of all general aviation aircraft registrations. Inci-

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Active General Aviation Aircraft By Counties

Counties with 40 or more aircraft ranked in order as of January 1, 1960

Rank	County	City	Total	Multi-Engine	Single Engine 4-Place or More	Other	AIRPORTS General Use	AIRPORTS Total
4	Larimer	Ft. Collins	42	2	13	27	1	3
5	Boulder	Boulder	41	1	22	18	2	2
CONNECTICUT			**536**	**44**	**186**	**306**	**20**	**30**
1	Fairfield	Bridgeport	171	12	44	115	2	5
2	Hartford	Hartford	142	18	57	67	6	6
3	New Haven	New Haven	92	9	34	49	4	5
4	New London	New London	41	4	21	16	2	3
DELAWARE			**221**	**35**	**86**	**100**	**11**	**18**
1	Newcastle	Wilmington	145	31	64	50	4	6
2	Kent	Dover	40	1	14	25	5	7
FLORIDA			**2,232**	**268**	**826**	**1,138**	**97**	**153**
1	Dade	Miami	582	107	191	284	5	7
2	Orange	Orlando	196	20	84	92	3	4
3	Broward	Ft. Lauderdale	174	25	91	57	5	6
4	Palm Beach	W. Palm Beach	122	14	38	70	4	6
5	Hillsborough	Tampa	105	15	40	50	3	4
6	Duval	Jacksonville	104	13	41	50	6	8
7	Pinellas	St. Petersburg	97	10	48	39	4	5
8	Volusia	Daytona Beach	80	8	31	41	3	7
9	Sarasota	Sarasota	64	3	27	34	3	3
10	Brevard	Melbourne	59	2	25	32	3	3
11	Polk	Lakeland	58	6	28	24	5	5
12	Escambia	Pensacola	47	3	17	27	2	2
13	Lee	Fort Myers	44	2	21	21	1	3
14	Leon	Tallahassee	43	2	8	33	2	2
15	Alachua	Gainesville	42	11	11	20	2	2
GEORGIA			**877**	**65**	**344**	**468**	**48**	**107**
1	Fulton	Atlanta	231	28	115	88	3	3
2	Cobb	Marietta	61	2	16	43	2	2
3	Bibb	Macon	47	3	11	33	2	3
4	DeKalb	Decatur	43	3	17	23	3	3
4	Muscogee	Columbus	43	5	24	14	2	2
IDAHO			**689**	**25**	**306**	**358**	**28**	**152**
1	Ada	Boise	143	14	71	58	4	5
2	Canyon	Nampa	65	2	26	37	2	6
3	Twin Falls	Twin Falls	59	—	23	36	2	3
ILLINOIS			**3,584**	**331**	**1,716**	**1,537**	**104**	**270**
1	Cook	Chicago	1,294	183	626	485	11	16
2	DuPage	Wheaton	172	8	88	76	5	12
3	Kane	Aurora	121	14	67	40	2	5
4	Champaign	Champaign	117	5	39	73	2	5
4	Winnebago	Rockford	117	29	48	40	3	7
6	Lake	Waukegan	106	7	50	49	4	9
7	Peoria	Peoria	91	6	46	39	2	2
8	Madison	Alton	89	11	48	30	3	3
9	Rock Island	Moline	83	6	37	40	1	2
10	Will	Joliet	76	5	31	40	4	12
11	Sangamon	Springfield	75	11	44	20	2	3
12	LaSalle	Ottawa	62	3	28	31	4	12
13	St. Clair	E. St. Louis	61	2	32	27	—	3
14	DeKalb	DeKalb	49	2	23	24	3	4
14	Macon	Decatur	49	4	29	16	1	1
16	McLean	Bloomington	47	—	22	25	1	2
17	McHenry	Woodstock	46	1	15	30	3	6
18	Vermillion	Danville	43	3	23	17	1	2
INDIANA			**1,875**	**145**	**876**	**854**	**97**	**133**
1	Marion	Indianapolis	270	24	150	96	3	3
2	Lake	Gary	139	4	68	67	5	8
3	Allen	Fort Wayne	121	22	55	44	3	3
4	Elkhart	Elkhart	106	14	49	43	4	4
5	St. Joseph	South Bend	105	8	42	55	3	5
6	Delaware	Muncie	87	10	61	16	2	2
7	Vanderburgh	Evansville	54	9	27	18	2	2
8	Madison	Anderson	52	2	33	17	4	2
9	Porter	Valparaiso	45	1	19	25	3	5
10	Vigo	Terre Haute	44	6	20	18	2	2
IOWA			**1,626**	**65**	**771**	**790**	**72**	**169**
1	Polk	Des Moines	179	13	95	71	4	5
2	Linn	Cedar Rapids	67	5	31	31	1	3
3	Woodbury	Sioux City	57	5	31	21	1	1
4	Scott	Davenport	53	2	33	18	2	2
5	Black Hawk	Waterloo	49	3	21	25	3	5
6	Story	Ames	48	1	18	29	2	4
7	Pottawattamie	Council Bluffs	41	—	16	25	1	2
KANSAS			**1,790**	**96**	**866**	**828**	**81**	**185**
1	Sedgwick	Wichita	558	54	291	213	7	12
2	Shawnee	Topeka	117	9	70	38	3	4
3	Wyandotte	Kansas City	91	4	40	47	1	1
4	Johnson	Olathe	71	4	35	32	5	6
5	Reno	Hutchinson	49	3	22	24	1	3
KENTUCKY			**529**	**44**	**272**	**213**	**22**	**32**
1	Jefferson	Louisville	157	18	89	50	3	3
2	Fayette	Lexington	58	3	34	21	1	1
LOUISIANA			**1,159**	**138**	**362**	**659**	**35**	**82**
1	Caddo	Shreveport	193	36	65	92	3	7
2	Orleans	New Orleans	190	31	49	110	1	2

(Continued on page 49)

dentally, 81 counties have either public use or limited use airports, but with no registered aircraft, and 450 counties have registered aircraft but no airports. In total, 809 counties have no airports.

Ranked nationally, 36 leading counties account for 25% of U. S. registrations. These leading counties and their Jan. 1, 1960, active general aviation aircraft registrations are as follows:

1. Los Angeles, Calif. 2,553
2. Cook (Chicago), Ill. 1,294
3. Dallas, Tex. 743
4. Harris (Houston), Tex. 715
5. New York, New York 606
6. Wayne (Detroit), Mich. 583
7. Dade (Miami), Fla. 582
8. Maricopa (Phoenix), Ariz. 573
9. Sedgwick (Wichita), Kansas 558
10. Hennepin (Minneapolis), Minn. 520
11. King (Seattle), Wash. 519
12. San Diego, Calif. 485
13. Tulsa, Okla. 451
14. Tarrant (Ft. Worth), Tex. 387
15. Multnomah (Portland), Ore. 372
16. Orange (Santa Ana), Calif. 366
17. Alameda (Oakland), Calif. 363
18. Jackson (Kansas City), Mo. 348
19. Cuyahoga (Cleveland), Ohio 346
20. Denver, Colo. 319
21. Kern (Bakersfield), Calif. 318
22. Bexar (San Antonio), Tex. 315
22. Milwaukee, Wisc. 315
24. Fresno, Calif. 309
25. Oklahoma (Okla. City), Okla. 308
26. Washington, D. C. 303
27. Oakland (Pontiac), Mich. 300
28. Allegheny (Pittsburgh), Pa. 298
29. Sacramento, Calif. 295
29. Santa Clara (San Jose), Calif. 295
31. Marion (Indianapolis), Ind. 270
32. San Bernadino, Calif. 269
33. Franklin (Columbus), Ohio 262
34. San Francisco, Calif. 251
35. Montgomery (Dayton), Ohio 248
36. Fulton (Atlanta), Ga. 231

The preceding tabulation covers all types of general aviation aircraft. In registrations of single-engine, 4-place or larger active general aviation aircraft (omitting 1-2-3-place single-engine and multi-engine types), the 15 top-ranked counties and their registrations are as follows:

1. Los Angeles, Calif. 1,006
2. Cook (Chicago), Ill. 626

(Continued on page 65)

Airhaven, Inc. at Redbird Airport...

...Shortcut to Dallas

There's no congested traffic pattern at Redbird Airport – no circling and waiting to land. You land on one of the two broad paved and lighted runways. Then taxi up to Airhaven, Inc. Clyde or Pat Jetton will meet you with prompt service, and a rent-car or other transportation for the easy seven-mile, 15-minute drive to downtown Dallas.

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Will Rogers Field
Oklahoma City, Oklahoma

ALAMO AVIATION, INC.
Municipal Airport
San Antonio, Texas

ATLANTIC AVIATION CORP.
- Teterboro Airport
  Teterboro, New Jersey
- Logan International Airport
  East Boston, Massachusetts
- International Airport
  Philadelphia, Pennsylvania
- New Castle County Airport
  Wilmington, Delaware

BUSINESS AIRCRAFT, INC.
9011 Randolph Street
Houston International Airport
Houston, Texas — MI 4-5595

BUTLER CO., AVIATION DIVISION
Midway Airport, Chicago, Ill.

CURREY SANDERS AIRCRAFT CO., INC.
Downtown Municipal Airport, Shreveport, La.

CUTTER-CARR FLYING SERVICE, INC.
West Mesa Airport, Albuquerque, New Mexico

GRAY AIRCRAFT SVC. CO., INC.
D. A. Cody, Service Manager
Love Field, Dallas, Texas

GREENSBORO-HIGH POINT AIR SERVICE, INC.
Greensboro-High Point Airport
Greensboro, North Carolina

ELLIOTT FLYING SERVICE
- Municipal Airport, Des Moines, Iowa
- Municipal Airport, Davenport, Iowa

THE NORMAN LARSON CO.
PLANESERVICE, INC. (Service Division)
Van Nuys Airport, Van Nuys, Calif.
(Los Angeles Area)

PIEDMONT AVIATION, INC.
Smith Reynolds Airport
Winston-Salem, North Carolina

ROSCOE TURNER AERONAUTICAL CORP.
Municipal Airport, Indianapolis, Ind.

TEXAS AVIATION CORPORATION
G. K. Roberts, Pounds Field
Tyler, Texas

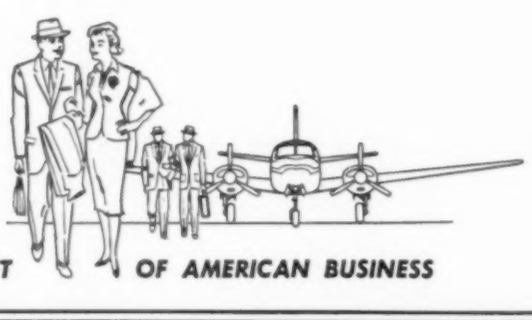
TOPEKA AIRCRAFT SALES & SERVICE
Municipal Airport, Topeka, Kansas

TRADEWIND AIRPORT CORP.
Tradewind Airport, Amarillo, Texas

TULSAIR DISTRIBUTORS, INC.
Hangar 8, Municipal Airport, Tulsa, Oklahoma

UNITED AIRPLANE SALES, INC.
New Municipal Airport
Wichita, Kansas

Beechcraft



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Relax in big-plane comfort! Come see what it's like to fly in the new Beechcraft Super G18, the big, powerful, rugged airliner-type business airplane so many travelers prefer.

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- **The biggest, roomiest airplane** — more comfort, more carrying ability—than any in its class.
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- **Gets there faster.** 234 mph top speed.
- **Flies farther.** Up to 1,626 miles non-stop.
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- **Superior short-field performance.** Operates easily out of small fields, with its ability to take off quickly and land short.
- **New factory-installed JATO units** (optional) for quick rocket "boost" when needed.
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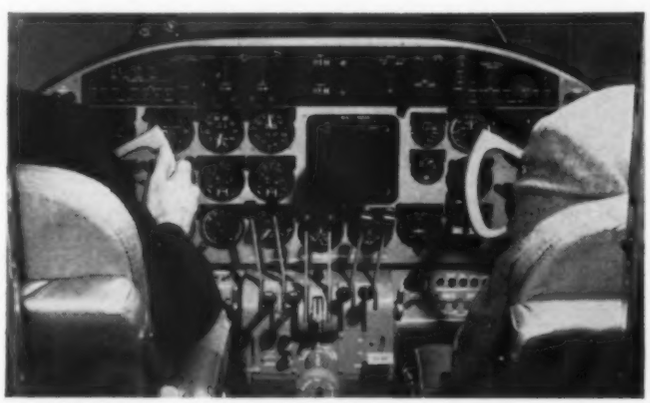

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- **Birmingham**—*Southern Airways Co.
- **Montgomery**—Montgomery Aviation Corp.

ALASKA
- **Anchorage**—Sea Airmotive, Inc.

ARIZONA
- **Phoenix**—*Cutter Aviation, Inc.

ARKANSAS
- **Ft. Smith**—Ft. Smith Flying Service, Inc.
- **Little Rock**—Central Flying School

CALIFORNIA
- **Bakersfield**—Alpha Aircraft
- **Fresno**—Aero Sales & Service, Inc.
- **Long Beech**—Belmont Aviation Corp.
- **Oakland**—*Golden Gate Aviation, Inc.
- **San Bernardino**—Tri-City Airport
- **San Jose**—Evergreen Aircraft Sales
- **Santa Ana**—Martin School of Aviation, Inc.
- **Santa Monica**—Wade Air Service
- **Van Nuys**—*Norman Larson Co.

COLORADO
- **Denver**—*Combs Aircraft, Inc.

CONNECTICUT
- **Rocky Hill**—*Atlantic Aviation Corp.
- **South Meriden**—Meriden Aircraft Corp.

DELAWARE
- **Wilmington**—*Atlantic Aviation Corp.

FLORIDA
- **Jacksonville**—Ren-Lin Aviation, Inc.
- **Lantana**—Florida Airmotive, Inc.
- **Miami**—Tursair Executive Aircraft Services, Inc.
- **Orlando**—*Southern Airways of Florida, Inc.
- **St. Petersburg**—Pinellas Aircraft, Inc.
- **Tampa**—*Southern Airways of Florida, Inc.

GEORGIA
- **Albany**—Albany Air Service
- **Atlanta**—*Southern Airways Co.

ILLINOIS
- **Chicago**—*Butler Airplane Sales
- **Lockport**—Star-Line Aviation, Inc.
- **Mt. Vernon**—Outland Aviation Co.
- **Oak Park**—Aircraft Sales Corp.
- **Rockford**—*Butler Airplane Sales
- **Springfield**—Capitol Aviation

INDIANA
- **Bloomington**—Indiana Aviation Activities, Inc.
- **Elkhart**—Hanley Air Activities, Inc.
- **Evansville**—Crescent City Aviation
- **Fort Wayne**—George H. Bailey Co., Inc.
- **Indianapolis**—*Roscoe Turner Aeronautical Corp.
- **Terre Haute**—Hulman Field Aviation, Inc.
- **Valparaiso**—Valparaiso Aero Service, Inc.

IOWA
- **Cedar Rapids**—Wathan Flying Service
- **Davenport**—*Elliott Flying Service, Inc.
- **Des Moines**—*Elliott Flying Service

KANSAS
- **Garden City**—Western Planesales, Inc.
- **Kansas City, Kansas**—*Topeka Aircraft Sales & Serv., Inc.
- **Topeka**—*Topeka Aircraft Sales & Serv., Inc.
- **Wichita**—*United Airplane Sales, Inc.

KENTUCKY
- **Lexington**—*Blue Grass Airmotive, Inc.
- **Louisville**—*Blue Grass Airmotive, Inc.
- **Owensboro**—Owensboro Aviation Co.

LOUISIANA
- **Baton Rouge**—Baton Rouge Aircraft, Inc.
- **Shreveport**—*Currey Sanders Aircraft Co., Inc.

MARYLAND
- **Baltimore**—Pan-Maryland Airways, Inc.
- **Silver Spring**—Atlantic Aviation Service, Inc.

MASSACHUSETTS
- **East Boston**—*Atlantic Aviation Corp.

MICHIGAN
- **Grand Rapids**—Grand Rapids Aviation, Inc.
- **Iron Mountain**—Fontana Aviation, Inc.
- **Lansing**—*Francis Aviation
- **Muskegon**—Executive Air Transport
- **Ypsilanti**—Air-O-Fleet Corp.

MINNESOTA
- **Mankato**—Dean Brown

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Rochester—*Gopher Aviation, Inc.
South St. Paul—*Gopher Aviation Sales
Worthington—Worthington Air Service

MISSISSIPPI
Jackson—Jim Hankins Air Service

MISSOURI
Kansas City—*Topeka Aircraft Sales & Service, Inc.
St. Louis—*Young Aviation Corp.
Valley Park—Midwest Aircraft Sales Corp.

MONTANA
Billings—Montana Aircraft Co.

NEBRASKA
Omaha—*Robert Graf, Inc.

NEVADA
Las Vegas—Aero Vegas, Inc.

NEW JERSEY
Teterboro—*Atlantic Aviation Corp.

NEW MEXICO
Albuquerque—*Cutter-Carr Flying Service
Aztec—Aztec Flying Serv., Inc.

NEW YORK
New York (Teterboro, N. J.)—*Atlantic Aviation Corp.
Rochester—*Page Airways, Inc.

NORTH CAROLINA
Charlotte—*Southern Airways Co.
Greensboro—Greensboro-High-Point Air Service, Inc.
Winston-Salem—*Piedmont Aviation, Inc.

NORTH DAKOTA
Omaha—Robert Graf, Inc.

OHIO
Cleveland—Donges Aircraft Sales, Inc.
Columbus—Columbus Aviation, Inc.
Findlay—Eddy Flying Service, Inc.
Vandalia—*Ohio Aviation Co.
Youngstown—*Youngstown Airways, Inc.

OKLAHOMA
Duncan—Duncan Aviation, Inc.
Enid—Dulick and Becker Industries
Muskogee—Sam's Flying Service
Oklahoma City—*Aircraftsmen, Inc.
Tulsa—*Tulsair Distributors, Inc.

OREGON
Medford—Valley Aero Sales of Oregon Ltd.
Portland—*Flightcraft, Inc.

PENNSYLVANIA
Dravosburg—Beckett Aviation Corp.
Erie—Derion Aviation
Philadelphia—*Atlantic Aviation Service, Inc.
Washington—Tri-State Aviation

RHODE ISLAND
Hillsgrove—Lippitt Aviation, Inc.

SOUTH CAROLINA
Charleston—*Hawthorne Aero Sales

SOUTH DAKOTA
Rapid City—Snedigar Flying Service

TENNESSEE
Chattanooga—ExecAir, Inc.
Knoxville—East Tennessee Aircraft, Inc.
Memphis—*SouthAire, Inc.
Nashville—*Blue Grass Airmotive, Inc.

TEXAS
Abilene—Abilene Aviation Co.
Amarillo—*Tradewind Airport Corp.
Corpus Christi—Gulf Coast Aviation, Inc.
Dallas—*J. R. Gray Co., Inc.
Texair, Inc.
El Paso—Westside Airport
Fort Worth—Ritchey Flying Service
Houston—*Business Aircraft, Inc.
Midland—Rich Air Co.
Plainview—Claude Hutcherson
San Antonio—*Alamo Aviation, Inc.
Tyler—Texas Aviation Corp.

UTAH
Salt Lake City—*Utah-Idaho Aircraft Co.

VIRGINIA
Lynchburg—Atlantic Aviation Corp.—Lynchburg
Norfolk—*Piedmont Aviation, Inc.

WASHINGTON
Seattle—Sulak Aviation Sales & Service
Spokane—Western Aircraft Corp.

WISCONSIN
Madison—Wiscon-Air, Inc.
Milwaukee—*Butler Airplane Sales

Active General Aviation Aircraft By Counties

Counties with 40 or more aircraft ranked in order as of January 1, 1960

Rank	County	City	Total	Multi-Engine	Single Engine 4-Place or More	Other	AIRPORTS General Use	AIRPORTS Total
3	E. Baton Rouge	Baton Rouge	102	25	46	31	2	2
4	Calcasieu	Lake Charles	81	7	25	49	2	3
5	Ouachita	Monroe	68	3	24	41	1	1
6	Lafayette	Lafayette	43	10	12	21	1	1
MAINE			**371**	**8**	**134**	**229**	**35**	**83**
1	Penobscott	Bangor	69	3	26	40	7	12
2	Cumberland	Portland	51	—	20	31	5	7
3	Aroostook	Presque Isle	47	—	18	29	5	13
MARYLAND			**624**	**43**	**233**	**348**	**29**	**44**
1	Baltimore City	Baltimore	208	23	84	101	—	—
2	Prince Georges	College Park	79	4	29	46	4	6
3	Montgomery	Silver Springs	63	2	21	40	1	2
4	Anne Arundel	Arundel	45	—	18	27	3	5
5	Baltimore	Baltimore	43	4	12	27	5	9
MASSACHUSETTS			**878**	**72**	**312**	**494**	**53**	**80**
1	Middlesex	Boston	172	9	52	111	5	10
2	Worcester	Worcester	119	9	38	72	8	13
3	Essex	Lawrence	91	6	25	60	4	7
4	Norfolk	Boston	88	8	44	36	1	3
5	Hampden	Springfield	83	5	38	40	5	6
6	Suffolk	Boston	82	11	34	37	2	3
7	Bristol	New Bedford	54	5	21	28	7	8
8	Berkshire	Pittafield	43	7	15	21	3	4
MICHIGAN			**2,715**	**249**	**1,132**	**1,334**	**124**	**197**
1	Wayne	Detroit	583	106	255	222	6	8
2	Oakland	Pontiac	300	25	141	134	6	6
3	Ingham	Lansing	143	16	75	52	2	3
4	Genese	Flint	130	6	51	73	3	3
5	Macomb	Mount Clemens	118	8	41	69	4	5
6	Kent	Grand Rapids	102	8	42	52	2	3
7	Kalamazoo	Kalamazoo	93	10	37	46	3	3
8	Washtenaw	Ann Arbor	93	12	40	41	3	3
9	Jackson	Jackson	69	6	33	30	2	2
10	Berrien	Benton Harbor	64	8	28	28	3	4
11	St. Clair	Port Huron	62	3	25	34	3	4
12	Lenawee	Adrian	56	4	25	27	2	6
13	Muskegon	Muskegon	50	2	20	28	1	3
MINNESOTA			**1,950**	**97**	**690**	**1,163**	**89**	**210**
1	Hennepin	Minneapolis	520	52	220	248	3	3
2	Ramsey	St. Paul	172	17	63	92	2	2
3	St. Louis	Duluth	148	2	36	110	10	16
4	Olmsted	Rochester	46	3	30	13	1	1
5	Dakota	Minneapolis	43	1	17	25	2	2
6	Blue Earth	Mankato	42	4	21	17	1	4
MISSISSIPPI			**718**	**37**	**177**	**504**	**38**	**76**
1	Washington	Greenville	75	1	12	62	5	7
2	Hinds	Jackson	70	7	33	30	1	2
3	Coahoma	Clarksdale	49	2	8	39	1	1
4	Leflore	Greenwood	46	—	9	37	1	3
MISSOURI			**1,461**	**108**	**661**	**692**	**63**	**128**
1	Jackson	Kansas City	348	22	179	147	2	2
2	St. Louis City	St. Louis	214	43	87	84	—	—
3	St. Louis	St. Louis	139	13	66	60	4	5
4	Greene	Springfield	66	5	35	26	2	2
MONTANA			**984**	**44**	**385**	**555**	**44**	**142**
1	Yellowstone	Billings	167	17	100	50	1	2
2	Cascade	Great Falls	70	2	41	27	1	2
3	Missoula	Missoula	63	8	17	38	1	6
4	Chouteau	Fort Benton	48	2	9	37	3	8
5	Hill	Havre	45	—	19	26	2	3
6	Pondera	Conrad	40	1	18	21	2	3
NEBRASKA			**1,174**	**66**	**447**	**661**	**56**	**168**
1	Douglas	Omaha	210	34	85	91	3	4
2	Lancaster	Lincoln	87	7	41	39	3	3
NEVADA			**333**	**45**	**124**	**164**	**19**	**50**
1	Clark	Las Vegas	116	24	48	44	4	7
2	Washoe	Reno	96	11	31	54	2	7
NEW HAMPSHIRE			**176**	**11**	**53**	**112**	**16**	**24**
1	Hillsborough	Manchester	42	4	14	24	2	2
NEW JERSEY			**1,259**	**131**	**481**	**647**	**55**	**88**
1	Bergen	Teaneck	227	38	105	84	5	7
2	Essex	Newark	115	10	46	59	2	2
3	Morris	Morristown	94	8	36	50	4	6
4	Camden	Camden	87	6	33	48	3	4
5	Monmouth	Long Branch	77	3	43	31	4	5
6	Union	Elizabeth	77	17	32	28	1	2
7	Mercer	Trenton	74	6	25	43	2	5
8	Passaic	Paterson	65	8	24	33	2	2
9	Middlesex	Perth Amboy	54	6	14	34	1	3
10	Somerset	Somerville	51	5	16	30	3	5
11	Cumberland	Vineland	48	3	13	32	4	7
12	Gloucester	Gloucester City	43	2	11	30	5	5
NEW MEXICO			**726**	**58**	**374**	**294**	**31**	**83**
1	Bernalillo	Albuquerque	200	21	110	69	4	4
2	Santa Fe	Santa Fe	63	10	27	26	2	2

(Continued on next page)

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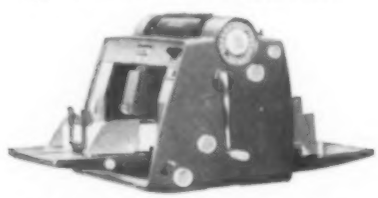

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Active General Aviation Aircraft By Counties

Counties with 40 or more aircraft ranked in order as of January 1, 1960

Rank	County	City	Total	Multi-Engine	Single Engine 4-Place or More	Other	AIRPORTS General Use	AIRPORTS Total
3	Eddy	Carlsbad	51	3	19	29	2	2
4	San Juan	Farmington	49	1	36	12	2	2
5	Lea	Hobbs	46	5	26	15	1	7
6	Chaves	Roswell	45	2	19	24	2	6
NEW YORK			**2,727**	**364**	**927**	**1,436**	**111**	**224**
1	New York	New York	606	194	187	225	1	3
2	Suffolk	Long Is. (East)	207	13	64	130	11	14
3	Nassau	Long Is. (West)	195	27	62	106	1	2
4	Erie	Buffalo	156	16	51	89	3	6
5	Westchester	White Plains	135	28	46	61	3	4
6	Monroe	Rochester	121	8	50	63	5	8
7	Onondaga	Syracuse	119	14	52	53	5	8
8	Dutchess	Poughkeepsie	68	4	18	46	1	3
8	Niagara	Niagara Falls	68	4	27	37	6	10
10	Broome	Binghampton	64	9	27	28	3	4
11	Albany	Albany	57	4	19	34	3	4
12	Oneida	Utica	53	5	15	33	3	7
13	Chautauqua	Jamestown	51	4	29	18	4	6
14	Orange	Newburg	49	—	15	34	4	6
NORTH CAROLINA			**1,149**	**95**	**444**	**610**	**59**	**105**
1	Mecklenburg	Charlotte	158	29	48	81	3	5
2	Guilford	Greensboro	129	15	64	50	3	5
3	Forsyth	Winston-Salem	81	14	37	30	1	1
4	Wake	Raleigh	61	4	23	34	3	3
NORTH DAKOTA			**675**	**7**	**169**	**499**	**33**	**155**
1	Cass	Fargo	72	4	19	49	1	7
2	Ward	Minot	51	—	14	37	1	4
3	Grand Forks	Grand Forks	46	—	15	31	2	5
OHIO			**3,108**	**364**	**1,257**	**1,487**	**138**	**262**
1	Cuyahoga	Cleveland	346	52	155	139	7	9
2	Franklin	Columbus	262	33	103	126	5	11
3	Montgomery	Dayton	248	40	107	101	5	6
4	Hamilton	Cincinnati	217	36	88	93	5	8
5	Summit	Akron	151	25	61	65	4	6
6	Mahoning	Youngstown	115	30	45	40	9	11
7	Stark	Canton	109	15	43	51	4	8
8	Lucas	Toledo	108	25	35	48	2	2
9	Butler	Middletown	80	6	26	48	3	3
10	Clark	Springfield	61	1	25	35	1	2
11	Lake	Euclid	51	9	23	19	3	4
12	Hancock	Findlay	50	13	25	12	3	5
12	Trumbull	Warren	50	5	17	28	—	3
14	Lorain	Lorain	46	3	20	23	4	9
14	Wood	Bowling Green	46	2	25	19	2	5
16	Fulton	Wauseon	43	4	28	11	1	3
17	Warren	Lebanon	42	—	18	24	3	6
OKLAHOMA			**1,511**	**188**	**615**	**708**	**61**	**125**
1	Tulsa	Tulsa	451	93	170	188	5	5
2	Oklahoma	Oklahoma City	308	53	137	118	4	5
3	Grady	Chickasha	57	—	4	53	1	1
4	Kay	Ponca City	43	3	23	17	3	4
4	Payne	Stillwater	43	3	15	25	2	2
6	Comanche	Lawton	41	2	24	15	1	3
7	Washington	Bartlesville	40	13	8	19	1	1
OREGON			**1,391**	**117**	**605**	**669**	**40**	**135**
1	Multnomah	Portland	372	55	161	156	2	3
2	Lane	Eugene	102	5	45	52	3	7
3	Umatilla	Pendleton	76	2	32	42	2	6
4	Jackson	Medford	70	11	19	40	1	6
5	Marion	Salem	68	6	26	36	1	2
6	Klamath	Klamath Falls	61	3	23	35	1	9
7	Linn	Albany	58	4	27	27	3	9
8	Washington	Portland	56	6	29	21	2	5
9	Douglas	Roseburg	53	3	24	26	3	6
10	Coos	Coos Bay	49	4	25	20	1	5
11	Clackamas	Portland	43	2	22	19	—	5
PENNSYLVANIA			**2,494**	**271**	**980**	**1,243**	**134**	**261**
1	Allegheny	Pittsburgh	298	75	107	116	8	9
2	Philadelphia	Philadelphia	202	32	71	99	3	4
3	Montgomery	Philadelphia	153	10	63	80	7	17
4	Bucks	Philadelphia	127	2	41	84	7	16
5	Berks	Reading	84	13	34	37	3	7
6	Delaware	Chester	75	8	31	36	1	2
7	Clinton	Lock Haven	73	18	46	9	1	3
8	Dauphin	Harrisburg	70	6	29	35	2	4
8	Lehigh	Allentown	70	4	28	38	4	4
10	Chester	West Chester	69	4	22	43	6	12
11	Lancaster	Lancaster	65	4	23	38	5	9
12	Cumberland	Carlisle	62	8	23	31	3	4
13	Westmoreland	Greensburg	61	3	24	34	3	5
14	York	York	58	8	26	24	2	6
15	Butler	Butler	57	4	25	28	3	5
16	Northampton	Bethlehem	49	6	24	19	2	3
17	Erie	Erie	44	5	17	22	2	3
18	Luzerne	Wilkes Barre	43	3	18	22	3	6
19	Lackawanna	Scranton	41	4	23	14	1	3
20	Beaver	Beaver Falls	40	—	12	28	5	6
RHODE ISLAND			**130**	**15**	**44**	**71**	**6**	**10**
1	Providence	Providence	67	6	26	35	2	2

(Continued on next page)

Active General Aviation Aircraft By Counties

Counties with 40 or more aircraft ranked in order as of January 1, 1960

Rank	County	City	Total	Multi-Engine	Single Engine 4-Place or More	Other	AIRPORTS General Use	AIRPORTS Total
SOUTH CAROLINA			**402**	**23**	**164**	**221**	**30**	**69**
1	Charleston	Charleston	61	3	34	24	4	5
2	Greenville	Greenville	46	8	21	17	1	2
SOUTH DAKOTA			**779**	**9**	**261**	**509**	**36**	**69**
1	Minnehaha	Sioux Falls	89	2	41	46	1	1
2	Pennington	Rapid City	87	1	42	44	1	2
TENNESSEE			**800**	**85**	**345**	**370**	**39**	**54**
1	Shelby	Memphis	222	27	106	89	5	5
2	Davidson	Nashville	111	30	43	38	3	3
3	Hamilton	Chattanooga	74	13	39	22	1	1
4	Knox	Knoxville	68	4	34	30	3	3
TEXAS			**6,051**	**769**	**2,400**	**2,855**	**209**	**505**
1	Dallas	Dallas	743	164	283	296	11	15
2	Harris	Houston	715	189	267	259	10	12
3	Tarrant	Fort Worth	387	61	137	189	7	15
4	Bexar	San Antonio	315	55	134	126	4	6
5	El Paso	El Paso	230	28	110	92	4	5
6	Hidalgo	McAllen	178	8	51	119	6	9
7	Lubbock	Lubbock	134	14	75	45	2	3
8	Nueces	Corpus Christi	130	21	59	50	4	5
9	Potter	Amarillo	128	14	71	43	1	1
10	Jefferson	Beaumont	125	5	37	83	3	4
11	Taylor	Abilene	121	12	82	26	1	1
12	Cameron	Brownsville	119	4	29	86	8	9
12	Travis	Austin	119	13	65	41	2	4
14	Wichita	Wichita Falls	106	20	56	30	3	4
15	Midland	Midland	104	26	61	17	2	2
16	Ector	Odessa	96	18	50	28	1	2
17	Hale	Plainview	84	2	44	38	2	3
18	Brazoria	Freeport	79	5	15	59	2	8
19	Reeves	Pecos	75	2	7	66	1	1
20	McLennan	Waco	57	5	26	26	1	3
21	Gregg	Longview	56	10	21	25	2	4
22	Tom Green	San Angelo	54	9	22	23	1	3
23	Galveston	Galveston	47	1	26	20	2	4
24	Terry	Brownfield	41	—	9	32	1	1
24	Val Verde	Del Rio	41	—	24	17	1	6
26	Pecos	Fort Stockton	40	1	14	25	1	9
UTAH			**442**	**23**	**193**	**226**	**25**	**57**
1	Salt Lake	Salt Lake City	185	9	93	83	2	5
2	Weber	Ogden	58	8	21	29	1	1
3	Utah	Provo	52	1	22	29	2	3
VIRGINIA			**802**	**60**	**285**	**457**	**45**	**87**
1	Arlington	Arlington	100	8	42	50	—	—
2	Henrico	Richmond	98	17	39	42	2	2
3	Norfolk	Norfolk	89	4	23	62	2	2
4	Fairfax	Alexandria	51	3	21	27	2	2
5	Warwick	Newport News	42	2	15	25	1	1
WASHINGTON			**1,703**	**56**	**635**	**1,012**	**57**	**172**
1	King	Seattle	519	28	180	311	7	13
2	Spokane	Spokane	127	2	53	72	3	8
3	Pierce	Tacoma	125	4	45	76	6	10
4	Yakima	Yakima	118	5	37	76	2	8
5	Clark	Vancouver	73	8	25	40	2	4
6	Snohomish	Everett	68	1	21	46	3	5
7	Chelan	Wenatchee	66	2	25	39	—	4
8	Benton	Kennewick	56	1	18	37	1	7
9	Kitsap	Bremerton	47	—	15	32	3	4
9	Whitman	Pullman	47	—	15	32	2	4
11	Grant	Ephrata	45	—	24	21	4	8
12	Walla Walla	Walla Walla	43	—	15	28	2	2
13	Okanogan	Omak	40	—	27	13	2	12
WEST VIRGINIA			**368**	**27**	**154**	**187**	**20**	**44**
1	Kanawha	Charleston	45	2	24	19	1	2
2	Cabell	Huntington	39	3	18	18	—	—
WISCONSIN			**1,323**	**120**	**479**	**724**	**83**	**161**
1	Milwaukee	Milwaukee	315	43	118	154	4	4
2	Dane	Madison	116	12	42	62	2	7
3	Waukesha	Waukesha	54	4	24	26	3	4
4	Racine	Racine	50	9	20	21	4	7
4	Rock	Beloit	50	5	17	28	2	2
6	Winnebago	Oshkosh	47	7	14	26	2	4
WYOMING			**401**	**26**	**164**	**211**	**23**	**55**
1	Natrona	Casper	58	6	27	25	1	1
2	Laramie	Cheyenne	53	7	29	17	1	1

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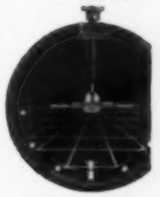

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New Business In The Hangar

AEA Launches Plan for More Quality Control And Reliability in Aircraft Radio Installations

SEEKING better and more reliable airborne electronics in the future, the Aircraft Electronics Association has developed an equipment reporting program and plans for member shops to attach an AEA decal to each "black box" installation, identifying the installation shop so that all other member shops will honor the installation with the same warranty or other service as that provided by the installer shop.

The two moves were taken at the AEA's biannual directors meeting last month in Los Angeles, where it was also announced that AEA will employ a Washington representative to keep the organization abreast of FAA and other activities.

D. R. (Bob) Anderson, Anderson Aircraft Radio, Detroit, president of AEA, reported the long-awaited AEA Service Report form will allow a single-page form to do the job for all black-box manufacturers. In addition, each form submitted by a member shop will not only go to the manufacturer but will go into an AEA file for periodic review and recommendations to each manufacturer for improvements in quality control and reliability. The directors adopted a plan to distribute and use an AEA decal to be attached to each black box installed in an airplane, this to earmark the installation as one made by a specific AEA member shop. A service code is part of this plan and is designed to cover the following:

1. The decal will be respected by every other AEA shop so that the installation with a decal will receive the same service, warranty or otherwise, that would be afforded by the shop that made the sale and installation.

2. The decal will be a seal of quality. High technical standards will be maintained by each member shop.

3. Through an exchange of service and installation techniques, a standards committee will work with member shops to improve and standardize service, thereby upgrading the airborne electronics industry.

"This program will go far to make for greater reliability and will be of great benefit to aircraft operators and pilots as well as to our member shops and the manufacturers," said Anderson.

The AEA membership comprises 74 shops in all FAA regions and two shops in Canada and a membership campaign is now underway to enlist the membership of eligible shops which would like to join. In addition to Anderson, other officers and directors attending the Los Angeles meeting included John Hausler, Qualitron, Inc., Burbank, vice president; Calvin White, West Texas Flying Service, Terminal, Tex., treasurer; E. A. McCready, Northern Air Service, Grand Rapids, newsletter editor; and the following directors: Thomas Aubry, Ohio Aviation, Vandalia; Al Holmes, Holmes Aircraft Radio, Canton, Ohio; Jack D. Prewitt, Dallas Aero Service, Dallas; W. M. Lentz, Southern Airways, Atlanta; Jack Zearfoss, Butler Aviation, Milwaukee; Herman Miller, San Jose Avionics, San Jose, Calif.; Charles O. Peacock, Aircraft Radio & Acc. Co., Denver; and J. W. Fielding, Bayaire Avionics, Oakland, Calif.

PRESSURIZED LOCKHEED SUPER 26 has been granted an FAA supplemental type certificate (STC), according to Lockheed Aircraft Service at Ontario, Calif., where the first pressurized Super 26 was remanufactured for Mesta Machine of Pitts-

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burgh. Cabin and cockpit are pressurized to maintain an 8,000-ft. altitude at 20,000 ft., with thermostatically-controlled air conditioning and heating on the ground as well as in the air. The LAS Super 26 replaces the rear wing spar with a forged steel fuselage ring having wing attachments. The military fuselage was discarded and replaced with an entirely new and enlarged cabin structure for increased head room in an unobstructed cabin area, plus lavatory and other equipment. The cabin is 22 ft. long, 6 ft. high and 4 ft. 8 ins. wide. Features include electrically-powered air stair door, Constellation-type cabin windows, heated windshield, Lockheed-manufactured fiberglass nose containing electronics and baggage space and auxiliary baggage space behind the cabin.

DALLAS AERO SERVICE, Love Field, Dallas, had three de Havilland Doves in for TNS-168 work — John Fisher's Ball Brothers Dove, Buck Weaver's General Pipe Dove and J. B. Kirkwood's Combo Sleep Dove. . . . The Copano Shell Oil de Havilland Heron came in from Venezuela for 3 engine changes, airframe inspection and components overhaul, interior refurbishing, radio work, repaint and recovering of control surfaces. . . . Also in for maintenance were Cardinal Drilling's Lodestar from Shreveport and Wagner Sign's Beech AT-11.

NATIONAL BUSINESS AIRCRAFT ASSOCIATION last month re-elected its president, B. J. Bergesen, air transportation manager for Ford Motor Co. Next year's annual meeting will be held at Tulsa. Others voted to serve additional terms in office were: John H. Winant, Sprague Electric, vice president; E. M. Beattie, General Electric, treasurer; William K. Lawton, executive director, secretary, and the following directors: Gerard J. Eger, International Harvester; Jim Ketner, Texas Eastern Transmission, and Walter C. Pague, Armco Steel. Remaining directors are Henry W. Bogess, Sinclair Refining; Joseph B. Burns, Fuller Brush Co.; John P. Meyers, Hubinger Co., and C. F. Zimmerman, Continental Oil.

REMMERT-WERNER, Lambert Field, St. Louis, installed fresh deicer boots and carburetor alcohol system in John Belmeyer's Gardner-Denver Twin Beech. . . . Freeman Fleming's Irving Oil Transport Super-92 DC-3 received a new interior and two fresh Super-92 engines. . . . Fuel tanks were overhauled and a fresh Super-92 engine was installed on John Gildea's Heckett Engineer DC-3. . . . Boots Johnston and Ken Riggs brought in Lario Oil's DC-3 for new exterior paint job and exchange of control surfaces. . . . A fresh Engine Works Super-92 engine was installed on Bob Hinds' Chemstrand DC-3.

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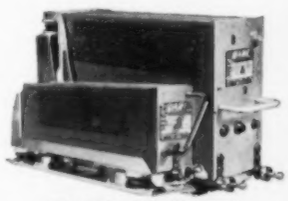

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EXECUTIVE AIRCRAFT SERVICE, Redbird Airport, Dallas, delivered Proctor & Gamble's No. 2 Grumman Gulfstream to Nelson U. Rokes after installation of custom interior and electronics. . . . Barney Deris brought in his Gulf Oil Grumman Widgeon from New Orleans for new interior, new instrument panel, new electrical switch panel and repaint. . . . Also in the hangar for work were Charles Bolton's Tecon Corp. Convair 240, W. L. (Poddy) Parish's Trinity Drilling Lodestar and Buster Clark's Texaco DC-3 from Houston.

AIRESEARCH AVIATION SERVICE Division of the Garrett Corp., Los Angeles International Airport, delivered its first conversion of a Convair from piston power to Napier Eland 3,500-hp. propjet engines. It went to Napier Engines, Inc., at Washington, D. C., following flight tests and is the first of five converted by AiResearch for Allegheny Airlines. . . . Tennessee Gas Transmission's Vickers Viscount is in the hangar for complete custom executive interior, cabin air conditioning system modification, additional soundproofing, cockpit refurbishing, installation of ground cooling fan, wing modifications to take large slipper tanks and radio and electronics work. . . . . Another executive Viscount was delivered after installation of executive interior, rework of cockpit, installation of flight engineer's seat and additional soundproofing, air conditioning and pressurization system revamping, installation of transponder and auxiliary battery system and repaint. . . . A DC-6A of Hawaiian Airlines is undergoing installation of two new galleys, a third lavatory and coat closets and rearranging of seats to meet latest MATS specs. . . . George Stackhouse brought in his National

Cash Register DC-3 for landing gear hydraulic system overhaul, removal and inspection of wings, fuel and oil tanks, short-stack modification, control surface recovering, interior refurnishing and exterior painting. Bill Marr and Mike Jocopille brought in the Clark Brothers DC-3 for de-icer boot change, landing gear painting, minor interior modifications and other work. . . . Republic Aviation's Convair 340, piloted by L. R. (Pete) Collings and Dick Watson, was in for installation of cabin radio and other items. . . . American Can's Convair 340 was delivered after installation of stainless steel overlay and interior work. . . . Ford Motor took delivery of its DC-3 following 8,000-hr. inspection and overhaul and refurnishing the interior to include installation of chairs in replacement of two divans. . . . Twenty-five radar kits are being fabricated for American Airlines' entire Convair fleet, the work including radomes and structural parts.

INTER-AMERICA AVIATION MODIFICATION CENTER, Meacham Field, Ft. Worth, had George K. Mustin's de Havilland Dove in for Technical News Sheet 168 work and double engine change, component overhaul, overhaul of landing gear and props and electric primer modification. . . . George Edel's Shell Oil Dove from Houston received a Horton & Horton interior, using turquoise and off-white. . . . Capt. Carlos Borga's Banco Nacional de Havilland Heron from Mexico City was in for landing gear overhaul, heater modifications, electrical changes and Horton & Horton interior refurbishing. . . . George Collins brought in Louisiana Power & Light's Beech 18 for outer wing tanks, rotating beacon, new type baggage compartment, air stair door, enlarged windows and electrical changes while H & H installed a new aqua and ivory custom interior. . . . R. M. White and Bryan Moses brought in their Lone Star Steel DC-3 for control surface re-covering, AD notes, exterior painting and annual inspection. . . . Horton & Horton's custom interior for Grumman's factory Gulfstream demonstrator featured a 12-place configuration with striped hand-woven carpet in sky blue and black. . . . Other H & H projects included special nylon stressed for 9G (produced on lace making machinery) and replacing cushioning, springs and covering material for material seating, enabling seat to be occupied for 18 hrs. with minimum fatigue. . . . Rush group of 4-place Bell Model J helicopters received custom interiors using special new sound-absorbing polyurethane headlining and bulkhead material. . . . E. E. Dunsworth's Trunkline Gas Beech 18 received new interior with enlarged overhead cockpit windows, stair door and L-shaped luggage area modifications.

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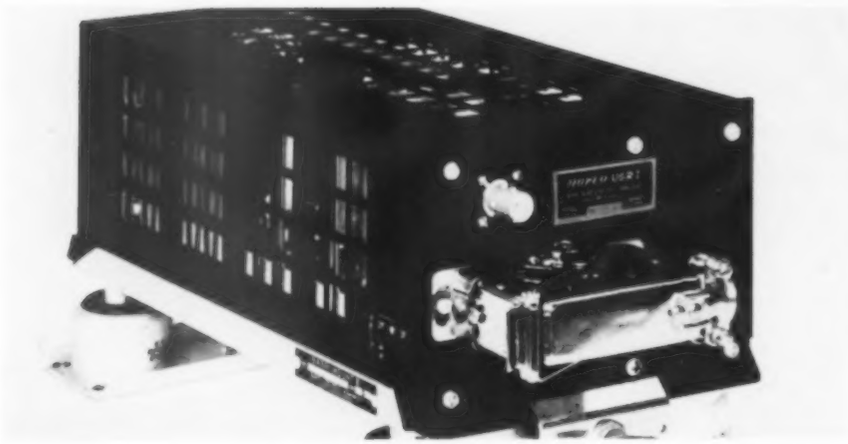

Low-Cost Glideslope

New 20-channel Narco UGR-1 ILS glideslope receiver (left) for business and executive aircraft weighs only 6.75 lbs. complete with shockmount, sells at $695, is TSO'ed by FAA (C-34 Category B) and measures 5 ins. high by 5 ins. wide by 10 ins. long. It features motor-driven electro-mechanical system for crystal-switching channel selection and uses hybrid tubes operating directly from aircraft's power source without separate power supply. When used with Narco Mark VI or 1016A, UGR-1 automatically switches to proper glideslope frequency when localizer frequency is tuned.

Burbank, has contracted to overhaul a minimum of 300 Rolls-Royce Tyne propjet engines of 5,370-ehp. each for the Flying Tiger Line's new Canadair L-44 swing-tail airfreighters it will begin operating in mid-1961. Roy Backman, PAC vice president, said the $6,000,000 contract calls for overhauling over 100 Tynes a year, providing for a 21-day overhaul cycle time. Ten CL-44's will be delivered to the Flying Tigers during 1961.

SPARTAN AIRCRAFT'S AVIATION SERVICE DIVISION, Municipal Airport, Tulsa, performed wing and brake modifications for Arthur D. Knapp's Mechanical Products Lockheed PV-1. . . . Clair Kingsbury brought in his Warren Petroleum Learstar for right engine change. . . . Also in the hangar for work were Bob Harlow's Transcontinental Gas Pipe Line PV-1, Walter Ohlrich's Beech 18 belonging to Tom Palmer, H. E. Botsford's Anchor Serum Douglas A-26, Mike Shemensky's Eaton Manufacturing Beech 18, two of Frank Auernig's Kewanee Oil DC-3's, James Gott's M. A. Hanna Company PV-1, Buzz Finefrock's Sohio Petroleum Lodestar and Lloyd Fuller's Mead Board Sales Beech 18.

FIRST NON-SCHEDULED AIR TRANSPORT SERVICE throughout the Spanish Sahara has been inaugurated from Gando Airport at Las Palmas, Gran Canaria, by Cambreleng and Lee, Ltd., of which Robert E. Lee, Jr., is vice president and chief pilot. Lee has been based at Gran Canaria as project manager for Aero Service Corp. of Philadelphia and Fairchild Aerial Surveys. He was graduated from Spartan School of Aeronautics at Tulsa before becoming a transport pilot in World War II. The new Sahara service uses a DC-3 on a contract with Phillips Petroleum to transport personnel and materials to geophysical exploration areas of the Spanish Sahara. Lee and his maintenance director, Ray Handy, also formerly of Fairchild Aerial Surveys, flew the DC-3 to Las Palmas last month from Dallas.

MATTITUCK AIRBASE CORP., Linden, N. J., had Bill Correll's Sea-Land Service Learstar in for work. Others in the hangar included John Mendes' Paul Tishman Company

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Newly expanded facilities provide MORE efficiency and greater production. For SUPER SERVICE of Top Quality on interiors, electronic systems, overhaul, and maintenance of executive aircraft . . . CALL:

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REDBIRD AIRPORT • DALLAS, TEXAS *L. V. Emery, Pres.*

Airmen's Calendar

Oct. 15-16—Fort Rucker Fly-In for Civilian and Military Fliers, Army Aviation Center, Ft. Rucker, Ala.

Oct. 18-20—Indiana Turkey Run Aviation Conference, Turkey Run State Park, Marshall, Indiana.

Oct. 19-21—Southeast Airport Managers Association Annual Convention, Far Horizons Motel, Sarasota-Bradenton, Fla.

Oct. 30-Nov. 1—Cessna Aircraft's Annual International Sales Meeting, Wichita, Kansas.

Nov. 1-2—Piper Aircraft's Annual International Sales Meeting, Grand Bahama Club, Grand Bahama Island.

Nov. 1-2—Radio Technical Commission for Aeronautics Silver Anniversary Assembly Meeting, Sheraton Park Hotel, Washington, D. C.

Nov. 3-5—Third Annual Michigan Industry, Missile and Space Conference, sponsored by Michigan Aeronautics and Space Association, Cobo Hall, Detroit.

Nov. 10-13—Texas Aerial Applicators Annual Convention, Echo Hotel, Edinburg, Texas.

Nov. 11—9th Annual Free Fly-In Breakfast and Air Show, Fairview, Okla.

Nov. 14-16 — National Aeronautics Association Convention, Indio, Calif.

Nov. 14-18—13th Annual International Air Safety Seminar, Phoenix, Arizona.

Nov. 15-17—ADMA's 36th Meeting, Riviera Hotel, Palm Springs, Calif.

Nov. 16-17—Beech Aircraft's Annual International Sales Meeting, Wichita, Kansas.

Nov. 19-20—Zaddie Bunker Days, honoring Flying Grandmother Bunker with Fly-In Breakfast Air Show and Exhibits (interested exhibitors contact Aero Palm Springs, sponsor), Palm Springs, Calif.

Dec. 2-4—Norman Larson's Annual Showing of 1961 Beechcrafts, Palm Desert Airports, Palm Springs, Calif.

Learstar, Frank Mann's Erwin Wasey, Ruthrauff & Ryan Beech 18, Cliff Kernochan's Grumman G44A belonging to E. R. Harriman, Al Shay's Pfizer & Company Beech 18 and Charles Smith's Atlantic Processing Aero Commander.

HOWARD AERO SERVICE, International Airport, San Antonio, delivered Art Stewart's Columbia Gas System Lodestar after interior rework, wing change, flap and tail modifications and exterior paint. . . . Ted Merchant was in with Dow Chemical's DC-3 for interior work and exterior paint. . . . Lynn Carney's Southern Sash Company Howard 250 received radio work. . . . Also in the hangar were Paul Duncan's Green Construction Howard Super Ventura, Fred Scharrer's Ryder System Super Ventura, Eddie Custer's Northern Natural Gas Super Ventura, Dick Prendergast's Chicago Tribune de Havilland Dove and Ken Jolly's Texas Gas Transmission B-26.

"From Miami to Africa, SunAir proved a great radio!"

— says Jerrie Cobb, aviation's Woman of The Year in 1959

Covering 13,200 miles in 70 hours' flying time, Miss Cobb flew an Aero Commander from Miami to Pretoria, South Africa. During the long flight, radio communication was maintained via SunAir H.F. Transceiver. Once again, as in many previous record-breaking, history-making flights, SunAir equipment lived up to its world-wide reputation for outstanding reliability and exceptional range. Little wonder that pilots in 60 countries throughout the world put complete faith in SunAir equipment where dependability, endurance, range, and precious pounds are vital.

SunAir MODEL T-22-RA... Weighing only 15 pounds, it maintains clear communications through 22 crystal-controlled channels. Certified to FAA TSO's C-31b and C-32b, Cat. A, it is an outstanding example of SunAir engineering skill.

4 Models in all from $895.

Aero Commander

SUNAIR ELECTRONICS, INC.

BROWARD COUNTY INTERNATIONAL AIRPORT • FORT LAUDERDALE, FLORIDA, U.S.A.

SEE YOUR SUNAIR DEALER OR CABLE SUNAIR • Recognized for reliability...throughout the world!

SKYHOOK FOR BUSINESS

(Continued from page 26)

Its design eliminates as many bearings as possible — the complete rotor head has only 2 bearings for rotor blade retention. The blades feature a patented L-shaped blade attach angle configuration, made up of 4 layers of sheet metal—flexible, these are twisted for pitch change motion.

The Skyhook's engine is a Continental FSO-526A with a gear-driven cooling fan and gear-driven supercharger, and rated at 270 hp. net. Designed especially for the Skyhook, this engine was developed and rated with the cooling fan and accessories already incorporated with the engine prior to its rating. Its 270 hp. is the power which is delivered to the drive shaft. The engine is mounted horizontally, eliminating the need for special lubrication or induction systems. Separate lubricating systems are used for the engine and transmission, making each independent of the other and permitting use of specified lubricants for each.

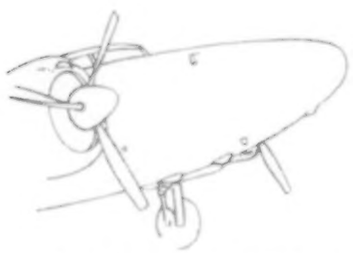
The Skyhook's skid landing gear has its struts attached to stainless steel straps. While normal rotary-wing landings are made with power to eliminate landing shock, the Cessna's stainless-steel straps are intended to absorb by deformation shock in power-off, auto-rotation landing emergencies. The straps are then easily and inexpensively replaced. This feature eliminates possibility of structural damage from emergency landing shocks.

Cessna is developing complete accessories for the Skyhook such as landing gear floats for amphibious operations and a powered hoist for handling cable-suspended loads. However, officials point out that they believe the Skyhook's chief utilization will be for passengers as a business and industrial utility aircraft.

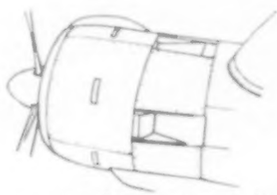
Largest and most comfortable cabin of any 4-place rotorcraft is Cessna's claim for the Skyhook. Because of the forward engine location, 360-degree cabin visibility is afforded. Both cabin doors have openable windows.

Another Cessna patented feature is a rotatable maximum airspeed indicator, approved by FAA. By positioning gross weight on an inner dial opposite altitude markings, the indicator's movable air speed red line marking automatically indicates maximum limit speed. This limit speed varies according to weight, altitude and rpm. and arises from the rotating wing's inherent retreating-blade stall characteristic. Without the adjustable airspeed indicator, the pilot would have to calculate his maximum speed limits with varying loads and altitudes.

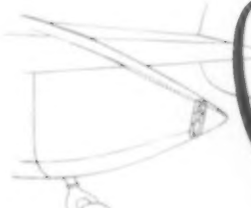
The Skyhook is certificated for speeds up to 122 mph. and with the supercharged engine little reduction in speed is encountered at altitude. The full horsepower is available from sea



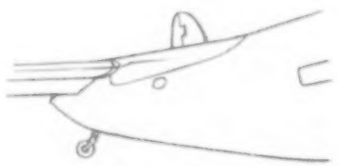
Radome and air speed system



Streamlined pressure cowling, improves performance.



Tail cone modification

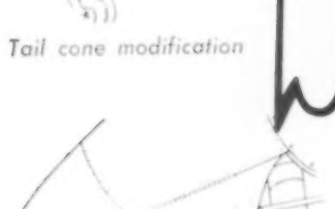


Improved saddle back design
(picture windows optional)

Dalaero

by

DAS



Rear landing gear doors close tight with landing gear up or down. Spot brakes, Decelostat.

Trailing edge modified 230 gal. auxiliary fuel tank each wing

Note stabilizer short tips and fin stabilizer probe fairings

Standby rocket take-off assist

Dalaero as designed by Dallas Aero Service incorporates all the basic advantages of Lodestar design plus the latest performance, speed and safety developments . . . making it the finest executive aircraft in its class.

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***LAP BELT ENERGY ABSORBER**, developed by Teco, Inc., Los Angeles, is 4-ounce metal device which absorbs 3,100 lbs. of typical 5,100-lb. lethal aircraft crash impact.*

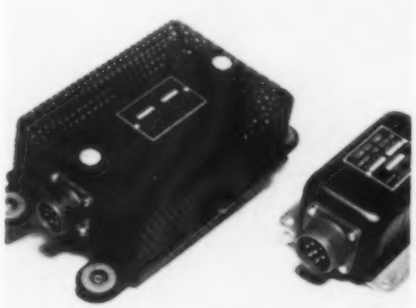
ROTORCRAFT FOR BUSINESS USE are becoming familiar sights at busy flying centers. Scene above shows new 4-place Hiller E4, one of several types of helicopters demonstrated by manufacturers at National Business Aircraft Association's annual flying display last month at Burbank.

level up to 8,000 ft. and operational speeds are not complicated by conventionally-narrow rpm. ranges — its full range of 400 rpm. is available at all altitudes. At 8,000 ft. above sea level, the Skyhook's rate of climb at gross weight is 1,030 fpm.

Standard fuel capacity of 60 gallons can be increased to 90 gals. with the use of streamlined auxiliary tanks. The standard tank consists of two inter-connected bladder-type fuel cells in the floor. Auxiliary tanks are attached on each side just rearward of the cabin doors.

Range and endurance are 260 miles and 3.37 hrs. on 60 gals. of fuel and 400 miles and 5.15 hrs. on 90 gals. of fuel.

At its maximum gross weight of 3,100 lbs., the Skyhook has a useful load of 1,020 lbs. Its 35-ft.-diameter rotor gives it a disc loading of 3.22 lbs. per sq. ft. for high performance.



AIRCRAFT SMOKE DETECTION SYSTEM consists of a detector "eye" (perforated case), which "sees" smoke and initiates alarm, and control amplifier (small unit). FAA-approved system is product of Pyrotector, Inc., Hingham, Mass.

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13¾" x 7¼" x 5" wide

The 360-Channel TURNER 230c-1 TRANSCEIVER ...REMOTE CRYSTAL CONTROLLED

Aircraft radio steps forward to new quality—with the development of the new **Turner 230c-1 Transceiver!** Equally efficient in both sending and receiving operations, it meets FCC specifications. Offers a 360-channel operating range . . . with a total weight of less than 11 lbs. Delivered complete with all matching components, ready for immediate installation.

- **TSO 37A and 38A Category A (Military Specifications—MIL I-26600-C and 6181 C)**
- **TRANSMITTER**
  Power output, 9 watts
  Freq. range, 118.00-135.95 MC in 50 KC steps
  100% MODULATION, (speech compressed)
- **RECEIVER**
  Power output, 5 watts into 4 and 500 ohms
  Freq. range, 118.00-135.95 MC in 50 KC steps
- **SENSITIVITY—2 mv.**
- **WEIGHT—under 11 lbs.**

Specifications & Performance brochure on request.

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$2495.00 COMPLETE with antenna, cables, plugs and shock mounts

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AIRCRAFT SHOW

(Continued from page 35)

have stressed the design for engines up to 300 hp., including the possibility of turboprop power. They are looking toward a complete line incuding all sorts of engine packages, one of which is a 300-hp. single-engine airplane.

We hitched our third ride in the profit-making Grumman Gulfstream brought out by Atlantic Aviation from the East Coast and we must say that it was just about the ultimate in electronic equipment and plush interior. Round-trip flying time from Burbank to Las Vegas was a few minutes under two hours. It's the first non-airline airplane to be completely equipped with dual Collins nav-com systems and the AP-103 autopilot. This airplane epitomizes the very healthy trend of corporate owners not to spare the horses when it comes to going first class. The time has passed when companies buy an expensive airplane, then compromise when it comes to equipping with the latest in electronic developments and accessories.

IT&T generously afforded us a flight demonstration in their Cessna 310 equipped with their FS-100 autopilot which has been under development for several years. Sales Manager Fred Twomey has just started his marketing program for this low-weight, simplified, electro-mechanical, three-axis design that has no tubes. In the $3,000 price range, the FS-100 has drawn heavily on the wealth of IT&T talent to produce this 21-pound, simple and therefore trouble free autopilot that holds new headings automatically without directional gyro setting. Pitch and roll may be operated individually or together. We were impressed with the constant rate of correction even though we couldn't find any rough air for the demonstration. Compensation is made for changes in aerodynamic trim due to power change without expensive automatic trim. It operates on either 12 or 24-volt systems with very low current drain.

Other newsworthy electronic equipment included Collins' WP-103 lightweight radar (FLIGHT MAGAZINE, September 1960) which opens up the use of weather radar in the light twins and capitalizes on the latest developments in transistorization and module construction for efficient servicing. Also, the new Narco, and Motorola ADF's, both selling below the $1,000 figure, captured a lot of interest which shows promise of a healthy market, what with the up-grading of the average pilot and a general wave of acknowledgement that many airplanes are flying around with inadequate radio equipment. In fact, the most optimistic people at the show were the King, Collins, ARC, Bendix, Dare, Wilcox, Narco, Lear and Motorola representatives who are closely watch-

B. J. Bergesen of Ford Motor Co., president of NBAA, received citation from the Los Angeles city council. Bergesen was re-elected president of the organization.

—(Photo by Richard Hrabetin of the Garrett Corp.)

SMOOTHER TWIN-ENGINE PERFORMANCE WITH THE CARRUTH LABORATORIES

DUAL TACHOMETER with SYNCHROSCOPE

The Carruth Laboratories Model CL 680 Tachometer shows simultaneously on a single dial the RPM speed of each engine while the synchroscope indicates relative speed of the engines. The synchroscope stands still when engines are synchronized, but when they are running at different speeds it revolves indicating the right engine is running faster or slower than the left engine.

Specifications

Weight	Approximately 2 lbs.
Humidity	95%
Altitude	—1,000 ft. to 40,000 ft.
Range	0 to 4,500 RPM
Temperature Range	—30°C to +70°C
Accuracy	In accordance with MIL-1-7119 and AS404A
Warranty	One year against defects in material or workmanship

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Make the most of your Cessna's usefulness by depending on the Authorized Cessna Service Centers listed for assurance that your airplane is always ready to go, always in top condition for reliability, performance and comfort.

Your Cessna is always ready to go

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The Air-Oasis Company
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Airnews, Inc.
260 E. Terminal Drive
San Antonio, Texas

Champ's Aviation, Inc.
Municipal Airport
El Paso and Lubbock, Texas

Clinton Aviation Company
Stapleton Airfield
Denver, Colorado

Coastal Aviation, Inc.
4906 Tampa Bay Blvd.
Tampa International Airport
Tampa 3, Florida

Cruse Aviation, Inc.
International Airport
Houston, Texas

Executive Aircaft Company
701 Perimeter Road
Kansas City, Missouri

Lynch Flying Service, Inc.
Logan Field Box 1575
Billings, Montana

Macon Air Service, Inc.
P. O. Box 2036
Macon, Ga.

Ragsdale Flying Service
Municipal Airport
Austin, Texas

Southwestern Skyways, Inc.
Municipal Airport
Santa Fe, New Mexico
and Ogden, Utah

Kenneth Starnes Aviation Service
Adams Field
Little Rock, Arkansas

Sunny South Aircraft Service, Inc.
Broward International Airport
Fort Lauderdale, Florida

Walston Aviation, Inc.
Civic Memorial Airport
East Alton, Illinois

Wings, Inc.
Wings Field
Philadelphia 18, Pa.

Yingling Aircraft, Inc.
Municipal Airport
Wichita, Kansas

ing 1960 airframe production figures as an index to the 1961 market.

The electronics division of ACF industries put on the premiere showing of its Pictorial Display Unit (FLIGHT MAGAZINE, August, 1960) which pinpoints the pilot's position on a roll map for precise en route and terminal navigation. The display is only six inches square and weighs only four pounds. The center of the map coincides with a VOR/DME ground station that transmits signals to the airplane while a free-moving, luminescent "bug", acting much like a blip, represents the aircraft in flight.

A wide-wing Lockheed U-2 of spy-in-the-sky fame took off in front of the NBAA aircraft show audience, climbing vertically until out of sight.

—(Photo by Richard Hrabetin of the Garrett Corp.)

Evidence of the impact of military surplus Twin Beech aircraft was all over the place. Nearly everybody has conversion kits and at least two companies have worked out tricycle landing gear for this old faithful of the skyways. Conrad, with Lunken out of Cincinnati, is doing well with the Conrad 9800 conversion program.

Bell Helicopter Company's full line of commercial helicopters were on deck with most interest displayed in the $285,000 204B Turbocopter (FLIGHT MAGAZINE, September, 1960) that seats ten. This amazing machine was parked on the Ambassador Hotel lawn and later flew in the demonstrations at Lockheed Air Terminal with an appreciative audience. Hughes demonstrated the low-cost (less than $25,000) two-placer that promises a rebirth in small helicopter interest which was nipped in the bud during the Korean War when Hiller withdrew its marketing program through dealers to concentrate on Army orders. Hughes reports firm orders for 50 of the little 'uns. Hiller is back as a substantial bidder for commercial orders with its E4 at about $70,000 per copy.

Don Payton of Westchester, Illinois, used the NBAA meeting to announce a charter flight to France in November for people interested in the Marcel Dassault turboprop Communaute, which he hopes to import for sale in the U. S. market. Mounting two Turbomeca Bastan 1,000-hp. engines, the Communaute is an 8-12-place executive transport in the 280 (economy cruise) to 332-mph. speed range. Payton plans a national demonstration tour early in 1961.—G.E.H.

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• Dynamically-Balanced Crankshafts
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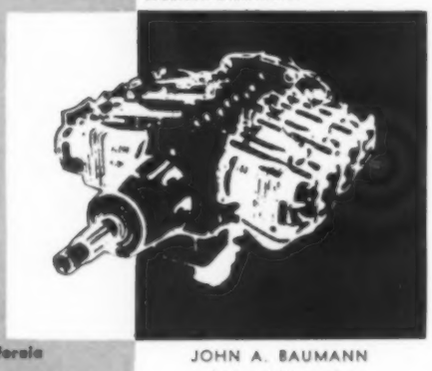

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General Manager

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an exclusive Rebat *engineering achievement eliminates mechanical failure*

NEW REBAT EXECUTIVE . . . **Executive Bonding** . . . completely prevents plate-destroying vibration damage. **Only Rebat has it!** Add other exclusive aircraft battery features plus a quarter century of dependable performance and you'll see why Rebat Aircraft Batteries are first choice of men who build, own, fly and service aircraft.

Rebat
EXECUTIVE
World's Finest Aircraft Battery
EXECUTIVE BONDING — — — MICRO-FINE HIGH CAPACITY MATERIAL
MONOLITHIC CONSTRUCTION — — — NEW HIGH STRENGTH CASE

THE ELECTRIC AUTOLITE CO. Battery Division Toledo 1, Ohio

LIGHTWEIGHT PROP DE-ICER by B. F. Goodrich has rubber-protected heating elements bonded to blades. It is comparable in cost with conventional alcohol systems weighing 2 to 5 times more and was installed on 20 Piper Aztecs bought by U. S. Navy.

TOP MANAGEMENT PERSONNEL of Beech Aircraft Corporation's newly created Marketing Division, pictured from left, are Michael G. Neuburger, vice president — export sales; Leddy L. Greever, vice president — domestic sales; Wyman L. Henry, vice president — marketing; Phil McKnight, manager — public relations and advertising; John F. Allen, manager — product development, and Paul E. Allen, manager — parts and service operations. Henry will direct and coordinate the functions of the new division which will be responsible for worldwide merchandising and marketing of Beechcraft's commercial airplanes and products.

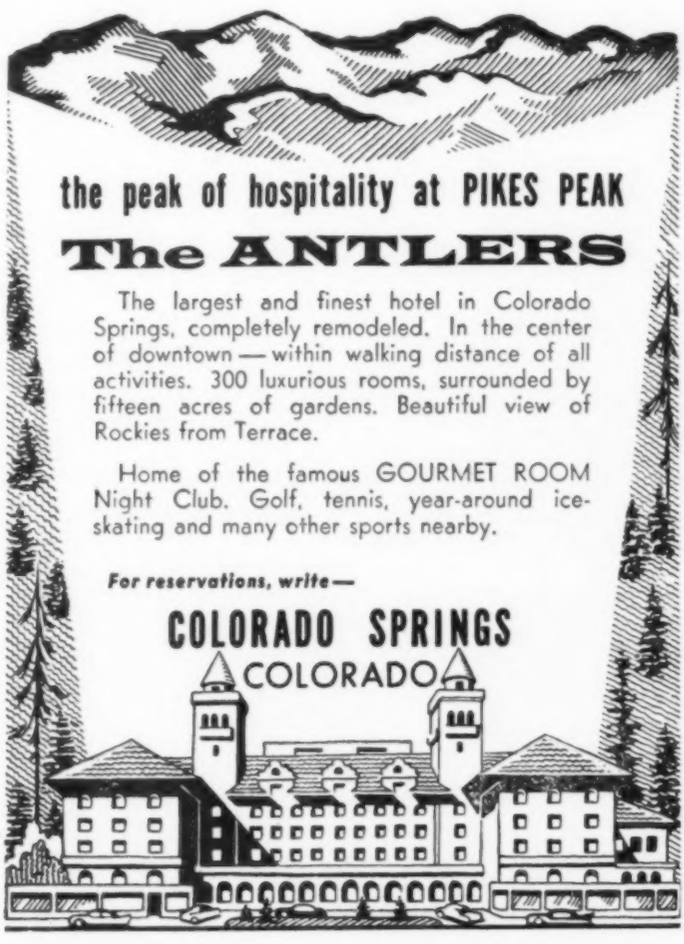
NEW 1961 COMANCHES

(Continued from page 30)

console for regulation of cabin air flow and temperature. In addition, the Comanche panel includes a large, deep compartment on the right side which accommodates personal belongings as well as maps. The new panel-mounted control console permits central regulation of cool fresh air, warm air and defrosting. A new air exhaust outlet, coupled with the Comanche's fresh air intake scoop, provides constant fresh air circulation throughout the cabin. Each occupant has two individually-controlled fresh air vents, seat-side and overhead. The new centrally- controlled defrosting system eliminates window fogging. A new aluminated asbestos shielding forward of the firewall insulates the cabin from engine heat and improves cabin soundproofing.

New in the cabin is a provision for draining the fuel sump from the pilot's seat. A floor access hatch convenient to the pilot contains the drain control and is located between the two front seats. The pilot can visually check to make sure the drain is shut off after use.

Comanches feature individual reclining front seats, with contoured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The ANTLERS
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Home of the famous GOURMET ROOM Night Club. Golf, tennis, year-around ice-skating and many other sports nearby.
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Genuine ZYGLO KIT complete with 100 W. BLACK LIGHT
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Please send _____ ZYGLO Kit(s) @ $125.00 each.
☐ Check enclosed, amount $_____ ☐ Send on our P.O. number_____.
☐ Send only free illustrated bulletin now—includes low prices of ZYGLO replacement materials: pressure cans and bulk .

HOT BLAST

2000 W CAP. 110 V.

AIRPLANE ENGINE WARMER

This Electric HOT-BLAST Airplane engine pre-warmer is manufactured in models to fit all Beech Bonanzas, Cessna 140, 170, 175, 180 and 310 Twin and Piper Pacer and Tri-Pacer.

The heater mounts on the front of the Aircraft cowl in thirty seconds and recirculates the air in a continuous cycle under the cowl to the heater and back over and over again therefore immediately starting a heat-gain.

Heater nose is foam rubber padded to protect the plane's finish, has automatic adjustable thermostat, fuses, two 1000-watt heating elements creating 6,824 B.T.U.'s of heat per hour.

Unit is completely portable, operates on 110 volts and weighs less than 16 lbs.

Specify make and model when ordering.

Order direct from the manufacturer at ONLY

$109.50 F. O. B. Factory

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head rests, seatbacks which adjust the three positions and full fore-and-aft movement to adjust to individual pilot and passenger legroom requirements. The rear seatback is also adjustable to any of four positions. A new cabin decor combines jewel-toned fabrics with rich white leather and heavy, soft-pile carpeting.

The Comanche 250 is distinguished by a striking new paint design featuring Daytona white wings, cabin top and tail with the remainder of the fuselage a solid Bahama blue, Pontiac red, Portland green or Phoenix tan. The 180 Comanche is Daytona white with a stylized color band of basic blue, red, green or tan, extending from spinner to tail.

Standard versions of the 250 and 180 include all basic instruments and equipment, including lights, as standard. Custom models include an advanced gyro instrument panel and a radio-navigation package consisting of a Narco 12-channel Superhomer for VHF communications and omni navigation, and the new Piper AutoNav radio direction finder. The Super Custom models replace the Superhomer with a Narco Mark V 90-channel transmitter and 190-channel crystal-controlled receiver, coupled with Narco's VOA-3A omni converter and CS-3 VOR-ILS navigation indicator. The AutoFlite models provide all of the equipment of the Super Custom and, in addition, has the Piper Auto-Control system.

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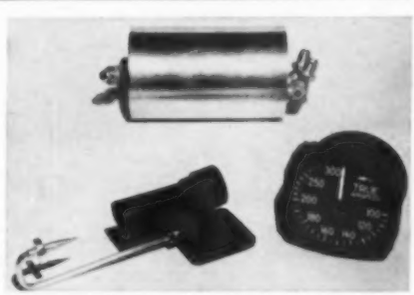

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OF FLIGHT MAGAZINE published monthly at Dallas, Texas, for October 1, 1960.

1. The names and addresses of the publisher, editor, managing editor, and business manager are: Publisher and Editor, George E. Haddaway, 2700 North Haskell Ave., Dallas, Texas; Managing Editor, Tom Ashley, 2700 North Haskell Ave., Dallas, Texas; Business Manager, Fred N. Stones, Jr., 2700 North Haskell Ave., Dallas, Texas.

2. The owner is: Air Review Publishing Corp., 2700 North Haskell Ave., Dallas, Texas; Stockholders holding 1 per cent or more of stock: George E. Haddaway, Dallas, Texas; Tom Ashley, Dallas, Texas; Fred N. Stones, Jr., Dallas, Texas.

3. The known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.) None.

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5. The average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the 12 months preceding the date shown above was: 11,314.

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Sworn to and subscribed before me this 30th day of September, 1960.

MRS. LOUISE ROBERTSON,
Notary Public

(My commission expires June, 1961.)
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WHERE ARE THE AIRPLANES?

(Continued from page 44)

3.	Sedgwick (Wichita), Kas.	291
4.	Dallas, Texas	283
5.	Harris (Houston), Texas	267
6.	Wayne (Detroit), Mich.	255
7.	Hennepin (Minneapolis), Minn.	220
8.	Maricopa (Phoenix), Ariz.	214
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12.	King (Seattle,) Wash.	180
13.	Jackson (Kansas City), Mo.	179
14.	Tulsa, Okla.	170
15.	Multnomah (Portland), Ore.	161

In registrations of active multi-engine general aviation aircraft, the nation's top 10 counties are ranked as follows:

1.	Los Angeles, Calif.	312
2.	New York, N. Y.	194
3.	Harris (Houston), Texas	189
4.	Cook (Chicago), Ill.	183
5.	Dallas, Texas	164
6.	Washington, D. C.	126
7.	Dade (Miami), Fla.	107
8.	Wayne (Detroit), Mich.	106
9.	Tulsa, Okla.	93
10.	Allegheny (Pittsburgh), Pa.	75

Copies of the Federal Aviation Agency publication "U.S. Active Civil Aircraft by State and County," which was the source of this analysis, are available from the Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C. The price is 50 cents.

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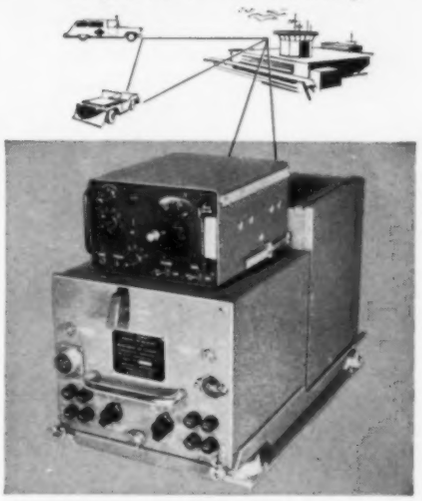

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